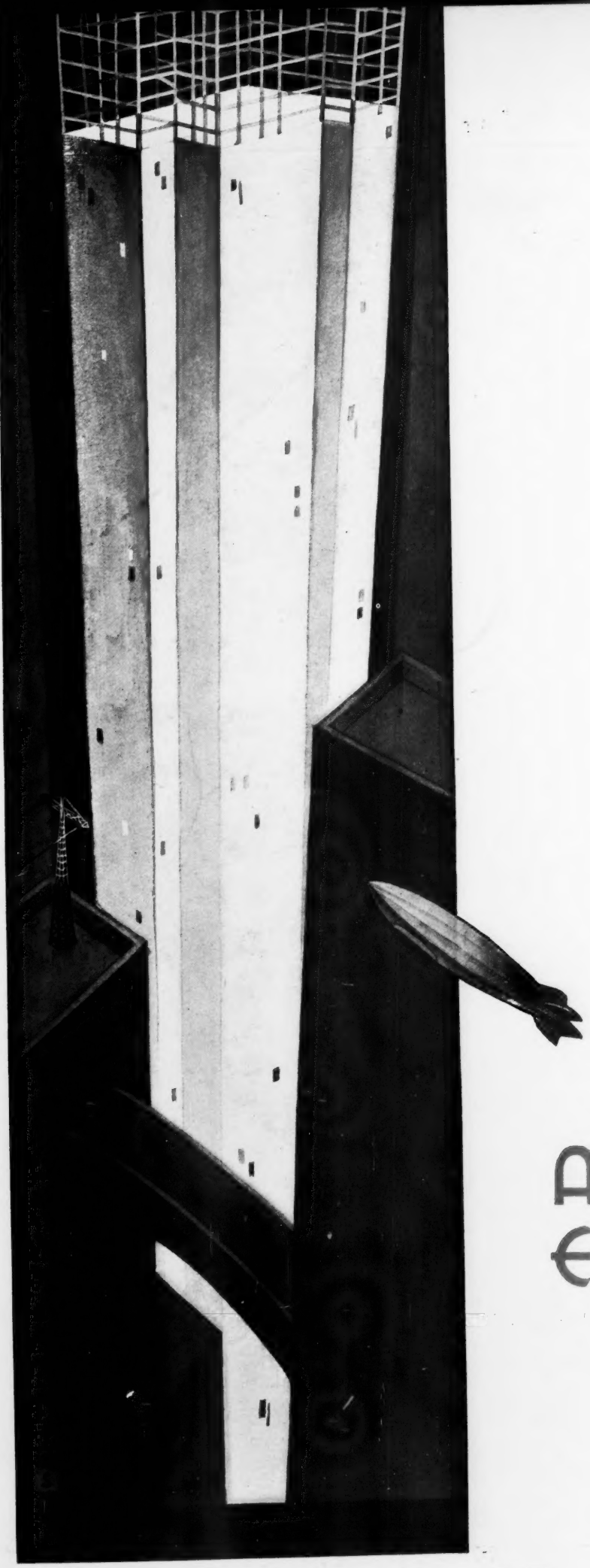
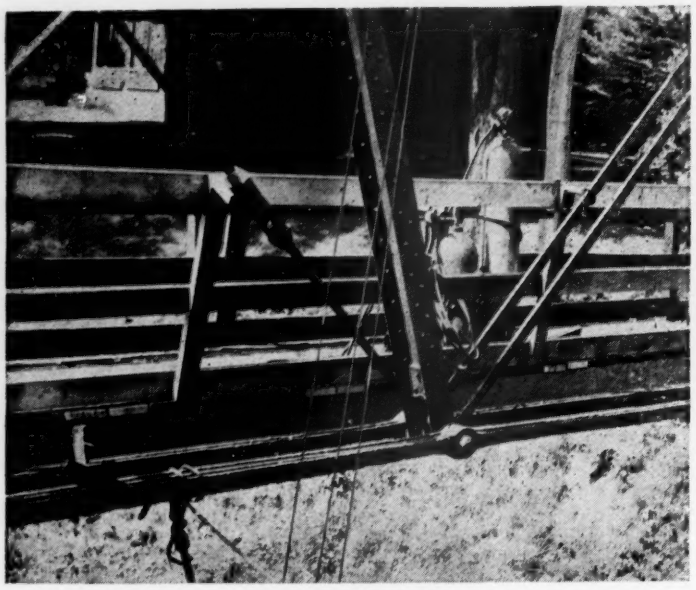
T
LE20.5
A5A
Eng
v.61.3
no.1



LIBRARY
OF THE COLLEGE OF ENGINEERING
UNIVERSITY OF ILLINOIS

The AMERICAN ENGINEER

JANUARY---1933



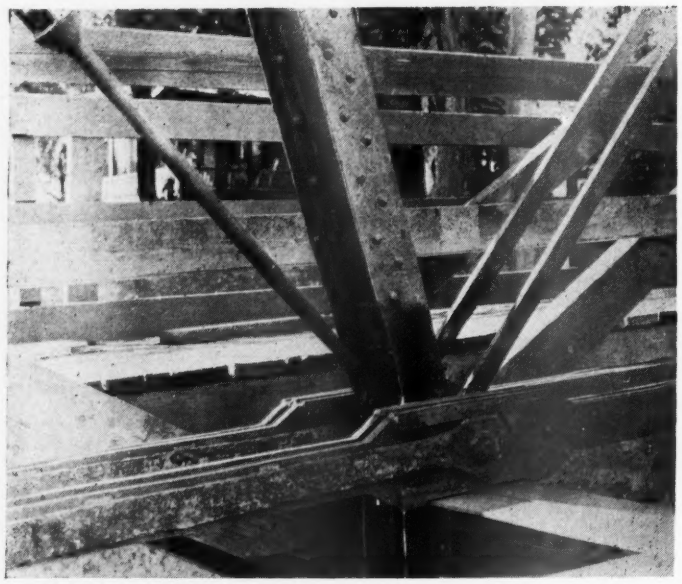
STATE HIGHWAY BRIDGE
Brewster, N. Y.

SAFE EFFICIENT BRIDGE REPAIRS

This pin connected truss bridge was economically repaired and kept safe for traffic by our application of the Leake method of repair.

This method, illustrated in detail at the right makes justifiable the strengthening of such bridges for present day loads, where forerly expensive renewals was the only solution.

We specialize in the design and performance of safe bridge repair work by the application of modern cost reducing methods.



DETAIL OF ARC WELDED REPAIRS AT PANEL POINT
(Method protected by patent pending)

THE LEAKE AND NELSON COMPANY

CONTRACTING – CONSULTING – STRUCTURAL – WELDING

Main Office & Works:
203 ASH ST.
Bridgeport, Connecticut
C. H. SORENSEN, Member
N. Y. State Society Prof. Eng.

ENGINEERS

New York Office:
ROOM 1845
Grand Central Terminal
F. B. DOOLITTLE, Member
N. Y. State Society Prof. Eng.

LICENSED UNDER U. S. A. PATENTS AND PATENTS PENDING CONTROLLED BY A. G. LEAKE

Is it a Westinghouse Elevator?

IF YOUR EYES DON'T TELL YOU
. . . *THE RIDING COMFORT WILL*

If the elevator doors close noiselessly....If you are unconscious of the gathering speed, or acceleration.....If the ride is smooth, without vibration or noise....If the slowing-down motion, or deceleration, is imperceptible....If the floor landings are exact, with no leveling—then you know you are riding in a Westinghouse—the logical elevator of modern architecture.

Westinghouse

Electric Elevators

Westinghouse is prepared in every way to serve in remodeling or rehabilitation—offering the newest conception of elevator comforts and economical elevator performance.

Inside this Cabinet are 27 Copper Chimneys

. . . and thereby hangs our tale of . . .

DUCT STANDARD MODEL

This radiator is 27″ long; 23″ high and 7″ wide. Weighing only 42 lbs., it is easily portable.
Operates on 110-115 Volt A. C. or D. C. circuits. Using 600 Watts on "Low" and 1200 Watts on "High," it may be plugged into ordinary convenience outlets.
Finished in mahogany or jade green.

Prices:—

$32.50
(Equipped with Manual Control).

$53.50
(With Thermostatic Control attached).

"ECONOMICAL ELECTRIC HEATING"

There is no denying the convenience, flexibility and low installation cost of Electric Heat. High Operating Cost has been the bugaboo.

A Formula of Physics tells us point blank that a given amount of Electricity converts into so many B. T. U.'s—no more—no less. Common sense, however, suggests that the Effectiveness of an Air Heater depends not only on the quantity of B. T. U.'s generated but also, to a great degree, on the way in which the generated heat is discharged from the heater and distributed throughout the room.

From years of thought and experimentation to materially increase Heating Effectiveness through more efficient Discharge and Distribution came our DUCT ELECTRIC RADIATOR.

Externally it is a graceful and finely finished piece of furniture. Inside, you find an interesting, utterly simple Chassis, embodying 36 sq. ft. of copper heating surface arranged in multiple-flue formation—the patented "DUCT PRINCIPLE"

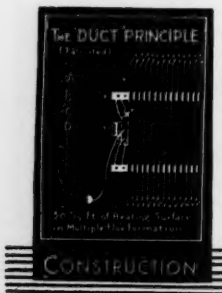
The sketches and descriptions below detail DUCT'S construction and operation. There are no fans or blowers—no moving parts at all, in fact, to require servicing or make a noise. The enormity of our heating surface plus the strong "flue action" of its patented arrangement accounts for DUCT'S amazing Effectiveness and consequent Economy.

A DUCT RADIATOR, using only 600 Watts, discharges the air at about 120°F; whereas an identic "ductless" heater, using 1200 Watts, discharges the air at only 130°. Our DUCT RADIATOR, switched up to 1200 Watts, discharges the air at 160°. This striking comparative demonstration is made daily at our offices.

The practical applications of an effective, economical and portable Electric Radiator—which is simply plugged in and switched on—are many and varied. Almost any place that needs extra or timely warmth, independent of a central plant, suggests a DUCT installation.

Further information about our product may be promptly secured through reference to Sweets' Catalogue or by a request to us for literature.

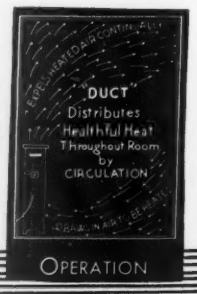
DUCT ELECTRIC HEATER CORP.
101 Park Ave. New York, N. Y.



LEFT: Sketch reveals construction of patented DUCT chassis. When switch (D) is turned to "High" or "Low," copper plates (A) are heated by electric elements (B). The air in "ducts" (C) is heated and rises rapidly.

DUCT
THE
economical
ELECTRIC RADIATOR

RIGHT: Thorough and rapid heating causes strong circulatory effect. Heated air is uniformly distributed throughout the room without the aid of fans or blowers. Only Duct offers this patented principle and its significant results.



THE AMERICAN ENGINEER

EDITORIAL AND EXECUTIVE OFFICES
POSTUM BUILDING, 250 PARK AVENUE, NEW YORK, N. Y. TELEPHONE PLAZA 3-8031

J. C. VIEWEG, PUBLISHER — ARTHUR V. SHERIDAN, EDITOR

VOLUME 3 — JANUARY, 1933 — NUMBER 1

CONTENTS

Personnel of the Executive Board ..... Page 2
A State Engineering Council 3
An Engineer's Response 4
The New York State Society 5
Its Activities and Objectives Reviewed
By D. B. STEINMAN
A Plan for Credit 6
Registration of Engineers 7
National Economics 8
Make This the Last Depression 9
The License Law Since 1920 10
Examination Questions 10
General News 13
Winter Meeting 13
Meeting Executive Board N. Y. S. S. P. E. 13
Some Comments on Trite Subjects 14
Campaign Against Misuse of Term Engineer 15
Advanced Studies for Disengaged Engineers 17
Chapter News 18
Licenses Granted 23
Professional Registry XXXII

Yearly Subscription: United States Insular Possessions, Cuba, Canada, Central America, South America and Spain, $2.00; Foreign, $3.00; Single Copy, 20c. Entered as second-class matter July 1, 1931, at the post office at Saugerties, New York, under the Act of March 3, 1879. The American Engineer, published by Vieweg and Martin, 250 Park Avenue, New York City, is the official publication of the New York State Society of Professional Engineers and the New Jersey Association of Engineers. Printing Office: 12 First Street, Saugerties, N. Y.

PERSONNEL OF THE EXECUTIVE BOARD OF THE NEW YORK STATE SOCIETY

1931-1932

Vice-President
ARNOLD G. CHAPMAN
74 Chapel St., Albany, N. Y.

President
DAVID B. STEINMAN
117 Liberty St., New York, N. Y.
Tel.: BArclay 7-2616

Second Vice-President
HARRY A. KIDDER
600 W. 59th St., New York, N. Y.
Tel.: COlumbus 5-4203

Financial Secretary
ERNEST F. FOX, Jr.
Borough Hall, Bronx
Tel.: TRemont 3-2680

Treasurer
PATRICK M. CORRY
16 E. 47th St., New York, N. Y.
Tel.: WIckersham 2-0900

DIRECTORS

ARTHUR K. OHMES, 101 Park Ave., New York, N. Y. AShland 4-8540
FRED H. ZURMUHLEN, Jr., 205 E. 42nd St., New York, N. Y. MUrray Hill 4-7329
JOHN M. WEISS, 50 E. 41st St., New York, N. Y. CAledonia 5-2210
HAROLD W. WATT, 428 S. 6th Ave., Mt. Vernon, N. Y. OAkwood 0679
ANDREW K. JOHNSON, 68 Hunterspoint Ave., L. I. City STillwell 4-5400
HAROLD G. RICE, Capitol Theatre Bldg., Rome, N. Y.
CHARLES W. MARVIN, 52 City Hall, Rochester, N. Y.
FREDERIC R. HARRIS, 10 E. 44th St., New York, N. Y. VAnderbilt 3-5151
HOMER G. BALCOM, 10 E. 47th St., New York, N. Y. WIckersham 2-7653
CHARLES R. WATERS, 546 Delaware Ave., Buffalo, N. Y.
CHARLES H. SELLS, 60 Rebecca Ave., Pleasantville, N. Y.
FRANCIS X. BODE, 29 West Erie St., Albany, N. Y.
ERICH HAUSMANN, Polytechnic Institute, Brooklyn, N. Y. TRiangle 5-6920
JENS L. HOLST, Rm. 825, 420 Lexington Ave., New York, N. Y. MOhawk 4-4267
FREDERICK WARD, 287 East 18th St., Brooklyn, N. Y. TRiangle 5-8680
ROBERT J. BARTLEY, 98 Main St., Bay Shore, N. Y.
THOMAS C. DESMOND, 56 Second St., Newburgh, N. Y.
WILLIAM T. FIELD, 906 State St., Watertown, N. Y.
IRVING HOCHSTADTER, 227 Front St., New York, N. Y. BEekman 3-5260
CHARLES S. KEATING, 1010 State Tower Bldg., Syracuse, N. Y.
EDGAR A. McKENNA, 8904 247th St., Queens Village, N. Y.
JOHN C. RIEDEL, 505 Macon St., Brooklyn, N. Y. TRiangle 5-7100
RAPHAEL J. SMYTH, Borough Hall, Bronx, N. Y. TRemont 3-2680
RALPH H. McKEE, Dept. of Chemical Engineering, Columbia University, New York, N. Y. UNiversity 4-3200

PAST PRESIDENTS

ARTHUR V. SHERIDAN, Borough Hall, Bronx TRemont 3-2680
JAMES M. WELSCH, 43 Pennsylvania Ave., Crestwood, Yonkers, N. Y. Tuckahoe 1816

EXECUTIVE OFFICES: GRAND CENTRAL TERMINAL BUILDING.

PERSONNEL OF THE EXECUTIVE BOARD OF THE NEW JERSEY ASSOCIATION

OFFICERS

First Vice-President
MORRIS R. SHERRERD
City Hall, Newark, N. J.

President
ARTHUR NOACK
51 Court St., Hackensack, N. J.

Second Vice-President
O. H. AMMANN
Boonton, N. J.

Treasurer
TREVOR J. POWELL
P. O. Box 212, Elizabeth, N. J.

Secretary
HUGH A. KELLY
921 Bergen Ave., Jersey City, N. J.

TRUSTEES

O. H. AMMANN, Boonton, N. J.
ROBERT O. BENTLEY, 72 River St., Newark, N. J.
JOHN F. BRALY, Spring Lake, N. J.
GERALD W. KNIGHT, 605 Broad St., Newark, N. J.
W. DeW. VOSBURY, 509 Cooper St., Camden, N. J.
RUSSELL S. WISE, 199 Washington Place, Passaic, N. J.
HARRY T. GREENE, Toms River, N. J.
PETER F. DALY, 739 Hudson Place, North Bergen, N. J.
PAUL P. RICE, Accho Building, Phillipsburg, N. J.
JULES VERNER, City Hall, Linden, N. J.
JACOB L. BAUER, 120 Broad St., Elizabeth, N. J.
ARTHUR P. ACKERMAN, Hackensack Trust Building, Hackensack, N. J.

OFFICES OF THE SECRETARY: TRUST COMPANY OF NEW JERSEY BUILDING, JERSEY CITY, N. J.

THE AMERICAN ENGINEER

Published Monthly for

The New York State Society and The New Jersey Association of Professional Engineers

12 First Street, Saugerties, N. Y., and Postum Building, 250 Park Avenue, New York, N. Y.

NUMBER 1 JANUARY, 1933

A STATE ENGINEERING COUNCIL

An Unnecessary and Unjustified Proposal

THE attempt, upon the part of certain groups, to create a New York State Engineering Council, patterned after the National Engineering Council in Washington, D. C., is a most inopportune and ill-conceived proposal.

The State Society was organized for the very purposes professed as the objectives of the proposed council. Its form permits of close association and contact with State, County and City officials and legislators. It has already formed Chapters covering nearly thirty counties and representing more than 80% of the population of the State. It has established friendly relations with civic groups and public authorities. It, and it alone, is and can be recognized by District Attorneys, County Clerks and other local officials concerned with the enforcement of the law as representative of the licensed practitioners of New York. For several years it has co-operated with the State Education Department and its sphere of influence is today manifest throughout the State. There is neither need nor justification for outside groups and unlicensed engineers to foist themselves and their ideas upon a calling which has advanced more in public recognition and professional standing since the formation of the State Society than in many previous decades and which has, in New York, attained a position of public recognition vastly superior to that enjoyed by the engineering profession in any other commonwealth of the nation.

For years the national groups gave no concern to the professional and social problems of the engineer. Had they done so there would never have been an occasion for strictly professional movements. The New York State Society is the direct result of the indifference and lack of understanding of existing engineering organizations. This belated attempt to enter a field for which they are not equipped, either by form of organization or unanimity of opinion, can accomplish nothing except to hamper the effectiveness of the one Society that has consistently and in a dignified manner pleaded the cause of the engineer before the bar of public opinion, and in doing so has established a better understanding between public and profession and given to the latter, especially in New York, a greater recognition than it has ever before received.

There is no occasion for organizations whose policies are largely determined outside of New York seeking to represent the profession in this State. At a recent meeting called for the purpose of organization, there were invited representatives of national societies, Engineering Council of Washington, D. C., a local society comprising architects, salesmen, contractors and others not entitled to practice engineering in New York, together with several selected individuals from outside the State. The New York State Society was not requested to participate and its President, who is perhaps the outstanding authority of the country on such matters, was conspicuous by his absence.

These heterogeneous groups decided that New York should have a Council and then extended to the State Society an invitation to lose its identity by associating with organizations, no two of which are wholly in accord with the very principles upon which it is proposed to function.

Whilst only local sections of national societies are to participate in deliberations of and share the expenses of the state council, common sense dictates that it is impossible to divorce the policies of the same from those of the national organizations of which these are integral parts.

The possibility of anything constructive emanating from such a source is most questionable. In the first place, the American Society of Mechanical Engineers and the American Institute of Electrical Engineers are not favorably committed to licensing and the American Institute of Mining Engineers is definitely opposed to the principle, whilst organizations such as the Rochester Engineering Society contain only a relatively small percentage of legally recognized professional engineers in their membership.

Every member of the various participating groups, who is licensed in New York, is eligible for membership in and should belong to the State Society. The additional expenditures incidental to the establishment of a Council and headquarters, could, with far greater benefit to the profession, be placed at the disposal of the Society, and allotted toward the endeavors of Arnold Chapman and of his Committee which the Council seeks to displace. There is no man in the State so well equipped for maintaining contacts at Albany as Mr. Chapman.

Even now the establishment of a society head-

(Continued on Page 20)

An Engineer's Response

To A Newspaper Criticism

By T. HAYDEN HAMILTON

In the Times of December 25th, there appeared the following from the pen of Mr. Thomas Hamilton, former secretary of the New York County Chapter:

Referring to your "Topics of The Times" leading off with "Science in the Saddle," I can only believe such an article was printed for the sole purpose of drawing fire. I'll bite and I hope others more competent than I am have deluged you with rebuttals of absurd statements made therein.

Quoting the remarkable statement, "For it is the essence of the scientist's and engineer's trades that they work without purpose," I suppose to the author of that line, a pure scientist with delicate and elaborate apparatus risking his neck shinnying up icy mountain peaks or ascending in balloons to unheard-of heights for observation and recording intensity of certain rays is a crazy, purposeless idiot. Years of study, training and acquiring classified knowledge provided him with this aimless purpose of risking his neck. The records of his findings may have no particular influence on our everyday life of the future. No purpose?

The engineer designing and building a factory must have no idea of the purpose for which it is to be used, and he is not consulted on the advisable location to build it with reference to raw materials, convenient labor, finished products, transportation and markets. Just another purposeless idiot. Left to himself he will "build roads and power stations and tractor plants" irrespective of their necessity, just for the crazy purposeless enthusiasm of building.

His Horizon Limited

Perhaps the profundity of ignorance exemplified in the statement of the engineer's purposelessness is in a measure justified in the light of experience to date. The article says "the world has been ruled (1) by selfish men avid of power and of profit but with no high social purpose in mind; (2) by stupid, ignorant, rule-of-thumb men with no vision to guide them."

To date, the engineer has been the paid servant of either or both these types of rulers, and as a dutiful servant has accepted the limited horizon of the specific job, taking no account of its value measured in broad social or economic terms. He left the broad view to the supposed good judgment of his employers. With starving families, no work and plenty of time to think and review his experience, he sees his work revealed in a strikingly clear light. He sees that "the present sad state of the world is attributable to the lack of purpose with which it has been governed" and has awakened to the full realization of what a fool he has been in reposing confidence in the shortsighted policies of his past employers.

The direct, definite, emphatic purpose of the engineer in applying science to save time and labor for a happier condition of existence has been distorted by the present two classes of rulers toward diametrically opposite ends. The increment of time and labor saved has slammed us into the present dilemma and shown up the archaic methods of our present rulers. No one is more cognizant or better fitted to understand the situation than the engineer, the creator of the machine, the stupid use of which has damned him with the rest of the world. He is to blame for taking the attitude of a hireling with what that implies, but with no one in the saddle at the moment his opportunity is at hand. By engineer I do not mean promoter.

Human Touch Not Lacking

"Human touch wanted." As an applier of science the engineer must be able to organize, control and lead labor forces. He must possess judgment, sympathy, diplomacy, leadership and justice in keeping his human organization running with the same well-oiled smoothness as his co-ordinated machinery. He must adapt himself to circumstances not only locally, nationally, but the world over. Dealing with humans is as much his business as dealing with raw materials. The human touch is as vital as a requirement of the executive engineer as the knowledge of his profession. It has been my own experience with a force of 2,500 men in an isolated section of the country to organize clubs, sports, a band, write and produce skits, to provide a better and less dangerous form of entertainment in off hours than gambling. My purpose was to erect and operate a large industrial unit with least cost to the owners. The human side of the story does not appear in formal reports to the directors. How many engineers cannot provide similar experiences? What does the author mean by "human touch wanted"?

The engineer's profession deals with God-given laws and at the very outset of his training he is warned of the dangers of "fudging." His background is for blunt honesty. In this sophisticated world, and by sophistication I mean versatility in double entendre, the engineer is apt to appear naively simple. Compare his background with that of the politician. As for purpose, the engineer strives to make the world a more enjoyable place to live in. What is the politician's purpose?

The world has accepted all too easily the unassuming but powerful contributions of the scientists and the engineers toward progress. It would prove a startling revelation if the engineers with their trained staffs the world over should suddenly take it into their heads to sit down for a while. Recognition of service would then be prompt.

The great problem of the future will be supplying a purposeful use of the average man's idle hours. What can we substitute for the chase of the dollar?

Comment: This is an able presentation of the engineer's position in connection with the conduct of human society.

THE NEW YORK STATE SOCIETY

Its Activities and Objectives Reviewed

By D. B. STEINMAN, President

THE attention of all engineers is invited to the data and proposals set forth in this article. Could any heterogeneous body, such as the proposed Engineers' State Council, have effected so much in so short a time? The record of the State Society justifies its position as the profession's legislative, social and economic sponsor and leader in New York.

What It Has Accomplished To-Date

1. Through our 1931 legislation, we raised the qualification requirements for the licensing of Professional Engineers and Land Surveyors.

2. For the first time, educational requirements (graduation or examinations) were written into the statute. Engineering was thereby raised to a higher level of respect and recognition as a learned profession.

3. We secured the incorporation of the same educational qualification standards in the recommended Model Registration Law for other States.

4. We effectively stopped proposed legislation tending to break up our Profession into discriminated branches and specialties. These proposals would have led to the disintegration of our Profession and to consequent division of interests and jurisdictional disputes.

5. We secured general recognition of the principle that Engineering is a single Profession, legally indivisible.

6. We successfully opposed accountants' legislation that would have deprived Engineers of the right to make financial reports.

7. We successfully and effectively launched a campaign to stop the misuse and abuse of the designation "Engineer."

8. By legislation in 1932, a rational, comprehensive definition of Professional Engineering, as desired by the Profession, was finally written into the statute.

9. The right of Licensed Professional Engineers to design any buildings or structures, or any alterations thereto, and to supervise their construction, has now been clearly recorded in the licensing law.

10. Provisions restricting the use of the designations "Engineer" and "Land Surveyor" have, for the first time, been written into the statute.

11. A basis of harmonious relationship and mutual legislative co-operation between the Engineering and Architectural Professions was established.

12. Licensed Professional Engineers are hereafter permitted to practice Architecture without restriction except that they may not call themselves "Architects."

13. The Licensing Law finally recognizes that Licensed Professional Engineers and Licensed Architects have equal rights to file plans for buildings or structures, and requires all such plans to be stamped with the seal of either a Licensed Professional Engineer or a Licensed Architect.

14 The enforcement provisions of the Licensing Law have been materially strengthened, and public officials and courts are now directed to aid in its enforcement.

15. The Architects in New York State have now agreed to sponsor legislation in 1933 to amend Section 300 of the Multiple Dwellings Law so as to restore to Licensed Professional Engineers the right to file plans for multiple dwellings and other structures, and alterations thereto, in New York City.

16. The aid and cooperation of the Attorney-General and other public officials have been enlisted in the enforcement of our licensing law.

17. Prosecutions and convictions have been secured under the law.

18. A monthly publication "The American Engineer" has been established to carry our objectives to the Engineers of this State and other States.

19. Relations of co-operation have been established with National organizations and other State Societies.

20. Legislators have been educated to understand the principles and the objectives of the Profession. This is in itself a great accomplishment.

21. Legislative measures in the interests of Engineers have been supported.

22. A program to simplify and unify the system of engineering degrees has been initiated, with gratifying progress to date.

23. A program of newspaper publicity on behalf of the Profession in this State has been inaugurated.

24. Eminent legal counsel has been retained on behalf of the Profession in this State to give advice and assistance in problems of legislation and enforcement.

25. Two of the present members of the State Licensing Board for Professional Engineers and Land Surveyors were nominated for appointment by the State Society.

26. The influence of the State Society was exerted to secure the naming of Engineers for various civic appointments.

27. The State Society prepared and published an outstanding report covering recommendations for engineering positions, classifications, qualifications, titles, and salaries in the state service.

28. Twenty-three County Chapters have been established covering twenty-six Counties of the State.

29. County Chapters have taken a leading part in the civic affairs and professional relations of their respective communities.

30. A code of ethics has been developed especially adapted to meet the conditions of professional practice in this State.

31. Individual County Chapters have established standards of practice and fees for professional services.

(Continued on Page 12)

A Plan For Credit

Col. Hugh A. Kelly

Secretary, New Jersey Association of Professional Engineers

A GREAT interest is being evinced by men in public life in the problem of aiding the unemployed and starting a flow of credit to those whose plight is such that they are being denied the advantages of a sane credit plan.

At this time, men of good will, thrift, industry and property are sorely tried. The past has been a nightmare, the future dark and foreboding. Men of a former stabilized world of commerce, agriculture and industry, thrifty and industrious, still able, willing and desirous to profitably continue their various vocations and activities in the formerly accepted plan, now find themselves denied sufficient funds to meet current expenses for housing, food and raiment for themselves and those dear to them. Stock dividends at best have been severely cut, and even worse, passed; mortgage interest unpaid, rents unpaid and vacancies in real property investment, no work or jobs for the worker, no market for agricultural products, with crops and manufactured products being sold for less than production costs, due to lack of demand for even the necessities.

The people of New Jersey have voted to spend $20,000,000 for unemployment relief, and the only reason anyone opposed this measure was that there was apparently no return for the money expended, and that both local and State credits are impaired when money derived from large bond issues are paid out with nothing in back of them.

I feel that no door has been left open, for the main sufferer from the present conditions to enter, and, while aid must be extended, not as a matter of charity, but as a matter of social duty, we must take into consideration the fact that hundreds of thousands of professional, business and working men who have every outward appearance of well being, find it impossible to feed, clothe and care for themselves and their families properly because all avenues of credit have been closed to them.

These men are not seeking relief in the accepted meaning of the term, but are in dire need of financial assistance and are perfectly willing and anxious to accept financial relief on an honorable basis with the distinct understanding that as soon as they are again income producing, they will repay whatever advance is made.

I also feel that the whole system of relief in this emergency as well as before this emergency is wrong in principle. I believe that 90% or 95% of the people needing assistance at any time are only too willing to obligate themselves to repay when circumstances permit, and I think that this should be made the basis of all relief, whether that relief is paid for by services or by a promise to pay.

It is my thought, that when emergency relief is sought, and approved by proper municipal or state authorities, that the applicant give back a note acknowledging and promising to pay back the obligation, with the head of the family or group as the maker, and endorsed by all the group participating in the benefit or succor, which would be a legal obligation on the part of those able to contract one, as well as a moral obligation on the part of the minor signers. I feel certain that a large part of these loans would be paid, and state and municipal credit buoyed at a time when financial agencies are reluctant to advance funds, not feeling that they will ever be returned, or at worst repudiated.

As a further sustaining force the State could exercise for collection the right of wage garnishee; state waiver on inheritances, insurance policy funds, real property transfer, state or municipal licenses, and other factors of this sort over which the State could or does exercise control and could force payment in whole or part, when the recipients can pay.

The filing, recording and auditing of these note transactions would act as an absolute control on these loans and expenditures.

The ramifications of this idea are so many that men of wide experience can readily see them. The promises to pay would, could and should be accepted at their face value and these would make a foundation for the re-establishment of the credit of States and their political sub-divisions. Money so advanced to men who are willing to repay it would find its way into channels that would soon start the wheels of industry moving again and the hundreds of thousands of men who are now facing the coming winter with no idea of where they are going to get food, clothing and heat to take care of their families without humbling themselves to ask for what is charity no matter what name it is called, can face the world with a feeling of confidence that they can apply to the government for financial aid sufficient to care for their needs and still hold their heads in the air.

This country can and did raise billions of dollars for the relief of banks, building and loan associations, railroads, and others, but seemingly cannot provide the necessities of life for the individuals who support the government and those industries.

Municipalities have borrowed or intend to borrow huge sums to render assistance by charity to all their impoverished citizens. This is a harmful principle to establish in our social system. Paternalism leads to pauperism in so many instances that its demoralizing effect will impair the initiative and driving power that made this Nation great.

Preservation of self respect and independence is an inherent virtue that is characteristic of our citizenry. Would it not be better to have municipal authorities after proper investigation to make loans to all but the known indigent members of each community?

Governments and political subdivisions should

(Continued on Page 20)

REGISTRATION OF ENGINEERS

A Reply To Arguments Against Same

By D. B. STEINMAN
President, New York State Society of Professional Engineers
Past President, National Council of State Boards of Engineering Examiners
Past President, American Association of Engineers

(1.) Registration is *not* the surrender by technical men of their jurisdiction over their Professions. Without registration laws, the Profession has no jurisdiction over the practice of Engineering. There is no way to preserve to the qualified Engineer his rights of practice, nor to stop the practice of Engineering by the non-engineer, the quack, the incompetent, or the impostor, except through a registration law. Without a registration law, there is no way of ousting from the practice of the Profession those who prove incompetent or unworthy. Registration places the force and sanction of the law behind the desire of the Profession to maintain a clearly recognizable line of demarcation between the Engineer and the non-engineer. It places the agencies of the law behind the efforts and aspirations of the Profession to maintain high standards of qualifications and ethical practice. Registration laws are planned and written by Engineers, enacted through the influence of Engineers, and are administered by Engineers. The Profession in each State can completely control the registration legislation and its administration.

(2.) It is true that registration means the entrance of the Profession into legislative activities, but it is certainly high time that the Profession make its influence felt in legislative councils. Once a proper registration law is enacted, no political influence need be feared to pervert the administration of the law. The members of the Registration Board are Engineers of high standing, nominated by the Profession in the State and, since their service is one of devotion to the Profession, self-sacrificing and non-lucrative, there is no inducement to make the appointments a political consideration. Examinations, registration, and revocations are handled by this Board, and cases of unlawful practice are decided in the courts. The administration of the law is kept on as high a plane as the standards of the Profession.

(3.) This legislation *is* required for the protection of the public. The work of no other Profession more truly concerns the safety of life, health and property. We cannot, however, afford to wait until there is a public demand for this legislation, for such demand would be an indictment of the Profession as falling short of its responsibilities. We owe it to the public and to our Profession to take the initiative. We do not want the legislation to be thrust upon us. We want to have a hand in writing the law, in securing its enactment, and in directing its administration, as a recognition of our responsibility to the public.

(4.) The argument that this is class legislation is an admission that it will benefit the Profession. We advocate the registration law because it is for the best interests of the public *and* of the Profession. The statutes regulating admission to the practice of law and medicine can, with equal propriety, be described as class legislation; but neither the public nor those Professions would be willing to annul that legislation. Those other learned professions would not have attained their present high positions in public confidence and esteem if it had not been for their registration laws. It is true that the demand for registration comes from the Profession; but the men who voice this demand and are putting their personal energy behind it are motivated only by their devotion to the Profession; and surely the fact that the Profession wants it should not be held as an argument against registration.

(5.) The fact that there are City Building Codes and State Boards to check designs of certain structures for public safety does not efface the arguments for registration any more than it dispenses with the need for the services of qualified Engineers. The elimination of the incompetent by proper registration laws is a far greater safeguard against the danger of faulty design than reliance on politically administered building codes which are necessarily limited in scope and which cannot be expected to cover the multiplicity of special conditions often encountered. Buildings and dams are not the only works of Engineers affecting life, health and property. The client needs to be protected against paying fees to quacks and incompetents who hold themselves out as Engineers. The public needs to be protected against improper planning, inefficient design, wasteful execution, and excessive cost, also against dishonorable dealings; mere structural adequacy is not the only desideratum.

(6.) The difficulty of defining "Engineer" or "Professional Engineer," "Engineering" or "Professional Engineering," is not an insuperable one, and should not be cited as a reason for opposing registration. Surely Engineers should be the last to avoid a worthwhile undertaking merely because it may involve a difficult problem. Workable definitions of these terms have been written into the Engineers' registration laws of many States, and effective court decisions and convictions have been secured under those definitions. Improved definitions have since been developed, and have been incorporated in the New York State statute and in the Model Registration Law. These definitions of "Engineering" or "Professional Engineering" are intentionally made as broad as possible, so as to preserve a wide field of practice to the Engineer.

(Continued on Page 20)

National Economics

Dr. J. A. L. Waddell

THE following dissertation and commentary, in the form of a letter, from one of the profession's most distinguished practitioners, so justly merits the attention of all engineers that it is published in full, with the hope that it will serve to augment the interest in civic affairs which the American Engineer is striving to inspire.

Dr. Waddell has contributed much to the calling of engineering and his interest in the social and economic problems of the moment bears witness to the range and versatility of one who throughout a long and successful career has never lost contact with the rank and file of the profession, nor with the civic obligations which the individual engineer, as a member of society, must assume.

To the Editor of
The American Engineer,
250 Park Ave.,
New York, N. Y.

Dear Sir:

Will you kindly grant some space in the columns of your excellent periodical to one who has been studying and practicing engineering for over six decades (both at home and abroad), in order that he may express in print his appreciation of the high character of your publication and bring to the notice of your readers an as yet unpublished memoir on a most important matter of national economics? Your allowing the said memoir to appear in your columns would by no means give it your endorsement, but would simply afford your readers an opportunity to discuss the subject in a succeeding issue.

I have just read your November number with deep interest, as I did several previous numbers; for you are inaugurating an extremely important policy that ought to have been adopted long ago, viz., the assumption by engineers of their proper place in the business world, and especially in matters relating to political economy and economics in general. Your November issue is full of interesting material that is vital for the Engineering Profession and for the advancement of our country's best interests, especially in this era of deep depression. Your opening editorial clearly sets forth the obligation of American engineers to come out of their shells and take their proper and logical place in society as the acknowledged leaders of progress. This is their bounden duty; but for years past they have shirked its performance and have ignored their paramount obligations to the world. Of late, however, they are beginning to awaken to a sense of their responsibility; and the suggestions and appeals given in your columns will undoubtedly stir them to more effective effort.

Whether the claim made by Stuart Chase in "The Nemesis of American Business," and of late by other writers and lecturers, to the effect that the present depression is blamable upon the Engineering Profession in that its members have been inventing so many labor-saving machines that hundreds of thousands of workmen have been thrown out of employment, is true or otherwise, it is undoubtedly the case that there are none so capable of extricating our nation from the existing Slough of Despond as the members of our profession.

Mr. Pirelli's article entitled "The Machine: Slave or Monster?" deals in a masterly manner with this indictment of us Engineers, and shows that we have not been acting as pirates or criminals but as real benefactors of the human race by the introduction of labor-saving devices. It is true that the release of human labor by the utilization of mechanical power has been developing so rapidly of late that many men, women, and children have been thrown out of employment. This is an economic condition that will certainly adjust itself in time; but that adjustment can be hastened through sane and logical governmental action, initiated and carried out by engineers. The solution of the problem does not consist in throwing the labor-saving machinery into the scrap heap and in discouraging the invention of any more of such apparatus; because so doing would effectively annihilate world progress. If our country has a surplus of food, clothing, amusements, and everything else that tends to make life worth living, there should be evolved some practicable method of having the entire population share in the enjoyment of these necessities and luxuries. Every individual, however, should do some kind of work, and should devote to it a reasonable number of hours per day, for idleness is always a curse. It is true that the amount of time customarily spent on labor will have to be materially reduced in nearly all lines of activity; but the ruling class should provide means for the satisfactory utilization of everybody's spare hours.

Instead of vituperating against the engineering profession because of its labor-saving devices, our philosophers, economists, politicians, and newspaper writers should bestir themselves and work for the adjustment of life in general so as to make it accord with the new conditions resulting from the use of such devices. The problem they have to solve is this—"Having in our country plenty of everything requisite for the health, comfort, and happiness of the entire population, how shall it be distributed so that there shall be no dire want, no injurious idleness, no state of unrest, no serious discontent?" This is a big undertaking; but it is not by any means beyond the possibility of accomplishment!

Mr. Pirelli's dissertation on this matter is truly inspiring, and should be read and re-read by our political economists.

Most interesting is your article entitled "German

(Continued on Page 22)

MAKE THIS THE LAST DEPRESSION

By Emanuel Lissner

(A Practising Engineer of San Pedro, California)

A REMEDY for the business depression—is there one? I doubt it. But after this depression has run its course and passed into history, there is a preventive which we may apply to make impossible the return of another such calamity.

Writing as an engineer, I say without hesitation that this preventive looks feasible from every angle, provided that the business world can be persuaded to accept it. It will not pull us out of the present depression; but, when we are once out, it will keep us from falling into another. The present day is the time to take the preliminary steps toward the application of this preventive, so that, when business has again become normal, we may maintain it in that blessed state. After prosperity returns, it will be too late to make the beginnings. We are all too much like the man in Arkansas who had a house with a leaky roof. He could not repair it in the rain and in fair weather it needed no repairing.

My preventive will not perpetuate such feverish boom times as we had at the start of the year 1929, when we were on the brink of a precipice without knowing it. It will render impossible such periods of overexpansion, just as it will the periods of depression. It is designed to flatten the peaks of the charted line of business activity, as well as to level the hollows.

At this point some reader will mutter, "The old story. He is going to tell us to stop overexpansion."

Absolutely correct. That is just what I am going to do—to tell the country to stop overexpansion—but I will go a step farther and explain exactly how this may be effected. Aesop relates that a council of rats once decided to fasten a bell around a cat's neck, so as to be warned of his approach, but no one of them could say how this was to be done. Let me assure my doubting reader that I will show him the details of tying on the bell.

Before I can explain my preventive in a manner to be understood I must make clear what has brought on the present depression. Its causes are many; but the outstanding one has been the overexpansion of our productive facilities, not only in manufacturing, but also in agriculture, mining, transportation, merchandising, communications, real estate, entertainment, and other similar lines. This overexpansion resulted in the production, or rather the potential production, of more commodities and services than are desired by the consuming public. I am speaking of the present depression, but there can be little doubt but that the same overcapacity to produce was largely, if not mainly, responsible for all other depressions since the beginning of our government.

It is the potential production which is all important. A carryover in wheat or cotton would mean little if we did not have an excessive acreage under cultivation. In the case of manufactured articles there is at present no overproduction. Consumption is small and inventories are low; but we all know that, at the first increase of demand or stepping up of prices, we would be swamped with products. I must insist that we do not think of overproduction but only of overcapacity.

I need not confine the application of this cause to the United States, for overexpansion is a world-wide condition. It is true that in Germany the depression is intensified by the country's debts and by the fact that its wealthy citizens keep their bank balances abroad, but German's greatest difficulty is found in the competition of other industrial nations. As for England, it is well recognized that she is suffering from a reduction in her export trade. The cotton mills of Lancashire are affected by those of Japan. In the same way our American wheat fields feel the competition of others in Argentina, and our copper mines must produce against those of Africa. If, in my discussion of conditions in the United States, I sometimes neglect to state specifically that our domestic plants are in competition with those of foreign lands, that part of our production must be sold abroad, and that a part of the commodities which we consume and a part of our raw materials are imported, the reader should not forget that such is the case.

I have said that the underlying cause of the depression is the overexpansion of our capacity to produce. Many persons advance other explanations which in their eyes are of paramount importance. Bankers mistakenly believe the causes are bound up with questions of finance. Having in their hands the disposal of large funds by means of which they control business men, corporations, and even governments, they have arrived at an exaggerated idea of the power of money. Money and credit are to business what lubricating oil is to an engine. The oil keeps the parts of the engine moving freely, but it does not furnish the motive power. Similarly, a smoothly working financial system is essential to business activity, but it cannot create this activity where it does not exist. A proof of this statement follows.

The depression of 1907 broke on us with the money panic of November of that year, when currency disappeared from circulation and recourse was had to clearing-house certificates. History showed that earlier depressions had been accompanied by similar violent banking troubles. Hence it came to be believed that financial crises were responsible for eras of bad business and unemployment. As a corrective, the Federal Reserve system was established; and this, when considered as a banking system, has operated successfully. In the severe depressions of 1921 and the present time, there have been no financial disturbances

(Continued on Page 22)

THE LICENSE LAW SINCE 1920

By Roy G. Finch, Secretary, Engineers' Board of Examiners

(Concluded)

No provision.	No provision.	Otherwise violate any of the provisions of this laws. Section 1455.
Such unlawful acts shall be deemed misdemeanors punishable by a fine of not less than $100 nor more than $500, or by imprisonment for 3 months, or both. Section 1462.	No change. Section 1462.	Such misdemeanors shall be punishable by a fine of not less than $100 and not more than $500, or imprisonment for not more than 1 year, or both. Section 1455.
	Public Work.	
No county, city, town or village or other political subdivision of this state shall engage in the construction or maintenance of any public work involving P. E. or L. S. for which plans, specifications and estimates have not been made by and the construction and maintenance supervised by a licensed P. E. or L. S., except that this shall not apply to the construction, improvement or maintenance of county roads or town highways, nor to any other public work when the completed project is estimated to cost not more than $5,000. Section 1464.	No change. Section 1464.	No change except that this provision shall not prevent the practice of architecture by a licensed Architect. Section 1459.
		(Continued on Page 14)
	Construction of This Law.	
(1) Corporations, co-partnerships and joint-stock associations may practice P. E., provided the actual practice is carried on by licensed Prof. Engrs. Section 1467.	No change. Section 1467.	No change. Section 1459.
(2) Designs, drawings, plans or specifications for machinery or apparatus by a corporation, partnership or joint stock association may be made under the general direction of a licensed P. E. Section 1467.	No change. Section 1467.	No change. Section 1459.
(3) A licensed P. E. may make land surveys when such surveys are essential to engineering projects. Section 1467.	No change. Section 1467.	No change. Section 1459.
(4) No license is required for surveying parcels of land more than 1 acre in area outside cities or incorporated villages, but the person making such surveys must not hold himself out as being a licensed L. S. Section 1467.	No change. Section 1467.	No change. Section 1459.

EXAMINATION QUESTIONS

For License As Professional Engineers

(Continued from Previous Issue)

Part II
MECHANICAL ENGINEERING
(First half)

Thursday, June 30, 1932—9:15 a. m. to 12:15 p. m., only

Answer any five of the following questions. Slide rule and any reference books may be used. Return these questions with your answer papers.

Return at 1:15 p. m. for the second half of this examination.

7 An engine is supplied with dry and saturated steam at 180 pounds per square inch absolute and exhausts at 15 pounds per square inch absolute. It gave a heat consumption of 22,000 B. t. u. per i. h. p. per hour. Calculate the thermal efficiency and the Rankine cycle ratio.

8 Coal containing 12,000 B. t. u. per pound is used by a boiler which generates 8.4 pounds of dry and saturated steam at a pressure of 210 pounds per square inch absolute per pound of coal when receiving feed water from an economizer at 300° F. Calculate the boiler, furnace and grate efficiency and also calculate the combined efficiency of boiler, furnace, grate and economizer. Feed water enters the economizer at 140° F.

9 The ultimate analysis of the coal used at a certain plant is as follows: C = 76.51%, H = 4.27%, N = 1.0%, O = 6.59%, S = 0.51%, ash = 11.12%. The monorecorder shows 14.0% CO_2 and 0.8% by volume CO in the products of combustion. How much excess air is being used?

10 Determine size of steam pipe to supply a 10,000 kw. steam turbine at 250 pounds gage and 150° of superheat, with a steam-rate of 10 pounds per kw.-hr., using a pressure drop of 5 pounds in 80 feet. Compute steam velocity in this main. Figure the thickness of pipe by usual machine-design calculations.

Part II
MECHANICAL ENGINEERING
(Second half)

Thursday, June 30, 1932—1:15 to 4:15 p. m. only

Answer any five of the following questions. Slide rule and any reference books may be used. Return these questions with your answer papers.

11 A room having 50 square feet of glass exposed and 300 square feet of net wall exposed (12″ brick furred and plastered) is to be used for an office in Albany. There are no losses through floor or ceiling. The volume of room is 1600 cubic feet. Assume 1½ air changes by infiltration. Determine the square feet of direct steam radiation required.

12 *a* Explain briefly the procedure for commercial acceptance test of a steam-turbine generator set of 100 kw. capacity. State purpose of test. Sketch test layout, indicating instruments needed, and give method of computing test results.

b How long should the test be and why? What is meant by critical speed?

13 A dyehouse needs 50,000 gallons of water per hour at 120° F. when the supply is at 38° F. We have 35,000 pounds of steam per hour of 85% dryness, at 2 pounds gage, now being wasted from a small steam engine. Would this be sufficient to heat the water? If not, how much additional live steam, superheated 50° F. at 125 pounds gage, would be needed?

14 What is meant by the specific speed of a hydraulic turbine? How is the efficiency of a hydraulic turbine measured? What differences are there between impulse and reaction turbines? Why are draft tubes used?

15 A steam turbine uses steam initially at 3000 pounds per square inch absolute and 100° superheat. The condenser pressure = 2″ mercury absolute; nozzle angles = 20°; maximum blade velocity is not to exceed 600 feet per second.

For no blade friction and maximum blade efficiency find (*a*) number of velocity stages, (*b*) number of pressure stages.

16 A single-cylinder double-acting steam engine runs at 200 r. p. m. Stroke = 24″; bore = 18″; initial steam is at 150 pounds per square inch gage and 100% quality; exhaust pressure = 16 pounds per square inch absolute; barometer = 30″ mercury; diagram factor = 90%; piston-rod diameter is 3″; cut-off = 30%. Find total probable indicated horsepower.

17 An ammonia compression refrigerating system operates on wet compression. The condenser pressure = 150.3 pounds per square inch gage and the evaporator pressure = 25.3 pounds per square inch gage. Ice is to be made from 60° F. raw water and the ice chilled to 25° F. Mechanical efficiency of compressor = 85%. Find the motor horsepower for 100 tons ice capacity per day. Bar. pres. = 30″ mercury.

18 A 2,000-kw. turbine receives steam at a pressure of 240 pounds per square inch absolute and total temperature of 470° F. The full-load unit steam rate is 11.0 pounds per kw.-hr., and the one quarter-load unit steam rate is 14.65 pounds per kw-hr. The steam consumption follows the Willans line. Plot the unit steam consumption curve against load for at least *five* points.

19 Given a spring ¾″ outside diameter, which is to deflect ¾″ under a load of 100 pounds, determine the diameter of the wire and number of coils if a spring steel is used of which the allowable working stress is 40,000 pounds per square inch.

20 State what machine tools are required in the machining of a connecting rod of I beam section for an automotive engine, assuming that the rod is to be machined all over.

Part I
MECHANICAL DESIGN AND ELECTRICAL PRINCIPLES

Wednesday, June 29, 1932—9:15 a. m. to 12:15 p. m., only

Answer any eight of the following questions. Slide rule and any reference books may be used. Return these questions with your answer papers.

1 A countershaft 4 feet long between supports carries two pulleys. The driving pulley is 24 inches in diameter and the driven pulley is 36 inches in diameter. The pulleys are 2 feet apart and each is 1 foot from a support. Assuming the ratio of the tension on the tight side of the belts to the tension on the loose side of the belts to be 3 to 1, find the diameter of the shaft, allowing working stresses of 6000 pounds per square inch in shear and 10,000 pounds per square inch in tension.

2 A link in a machine member, located in a horizontal position, is 10 feet long. It carries a weight of 1800 pounds in the center of its span and in addition is subjected to a tensile load of 18,000 pounds. Make the depth of the link twice its width and determine its dimensions. [Ultimate strength of material 60,000 pounds per square inch; factor of safety = 5]

3 A self-sustaining steel stack 80 feet high and 4 feet in diameter is to be secured to its foundation with six bolts on a bolt circle 4 feet 6 inches in diameter. Assuming a maximum wind pressure of 25 pounds per square foot of projected stack area and allowing a maximum stress of 5000 pounds per square inch in the bolts, calculate the size of the bolts required.

4 Show analytically the manner of determining the thickness of boiler shell, given internal diameter, pressure and efficiency of joint. Mere substitution in a formula is not sufficient. Show sketch and all work.

5 A high-speed engine, having a flywheel 66 inches in diameter, is connected by a single leather belt to a generator having an 18-inch pulley. The engine is capable of developing 75 h. p. at 280 r. p. m. and the distance between the shafts is 18 feet. Determine the required width of the belt, assuming that its thickness is ¼ inch and that a cemented joint is used.

6 Assume a time-displacement diagram and show clearly how to lay out a disc cam with an offset reciprocating follower with roller.

7 *a* Design a bus bar 10 feet long and of rectangular cross section for 1000-ampere current-carrying capacity. Assume 800 circular mils per ampere. Give dimensions of bar in inches.

b Assume that the resistance per circular mil area per foot = 10.5 ohms. What is the drop in potential from one end of bar to the other when it carries 1000 amperes?

8 A coil of insulated wire having a resistance of 300 ohms is mounted in a tube through which water at an initial temperature of 10° C. may be passed at a constant rate. The current through the coil is maintained constant at 2 amperes and the flow of water is so regulated that the temperature of the effluent is as much above the air temperature of 25° C. as the initial temperature was below it.

a At what rate must water be made to flow?

b How many kilowatt hours of energy are necessary to heat 10,000 liters of water?

9 Give a simplified layout of an electric starting and ignition system for a gasoline engine. Tell precisely the purpose of each part and its principle of operation.

10 *a* An electric heater was tested for power consumption on an alternating current circuit and was found to draw 5.7 amperes at 110 volts r. m. s. values. The power input as determined by a wattmeter was 598 watts. What was the power factor and the angle of displacement between the voltage and the current in the heater?

b How much energy can be stored in a 0.01 microfarad condenser when charged to 20,000 volts?

11 Compare the following motors as to starting torque: shunt, series, induction, synchronous. Assume that the motors have the same horsepower and speed ratings. Also assume that the motors are thrown across full line potential at starting.

12 The dimensions of a drafting room are 50 feet x 35 feet x 20 feet. Specify the amount of illumination required and the type and spacing of the lighting units.

Part I
ENGINEERING ECONOMICS AND PRACTICE (Administration

Wednesday, June 29, 1932—1:15 to 4:15 p. m., only

Answer any eight of the following questions. Slide rule and any reference books may be used. Return these questions with your answer papers.

1 A steam plant of 1000 horsepower capacity costs $48,000. It operates 3000 hours per year; depreciation, interest, insurance and taxes amount to 15% per annum. Operating costs, including attendance, fuel, repairs, etc., are 0.6 cents per horsepower-hour. What is the total cost per horsepower-hour?

2 A pumping plant of 1000 g. p. m. capacity delivers water against a head of 120 feet with an efficiency of 70% at full load and 40% at half load. The plant costs $850 to install; the power costs one cent per horsepower-hour, and fixed charges are 12% of first cost.

The plant operates at full load for 2000 hours per year and at half load for 1000 hours per year. Find the total annual cost of operation and the cost per gallon pumped.

3 The development of mine-mouth steam power plants is often advocated as a means of saving the burden due to the transportation cost of the fuel. Why is this plan seldom feasible?

4 A blower for an a. c. motor car weighs 1000 pounds. This weight can be reduced by substituting 100 pounds of aluminum alloy for 280 pounds of steel. Assuming straight line depreciation, will it be economical to do so?

Cost of aluminum alloy parts, $0.90 per pound
Cost of steel parts 0.27 per pound
Cost of power 0.011 per kw.-hr.
Power consumption 90 watt hours per ton mile
Yearly mileage of car, 45,000
Life of car, 30 years
Cars are financed at 5%

5 A turbine is purchased on a guarantee-of-performance basis, but upon test is found to be less efficient than guaranteed, with the result that the operating cost is $300 per year greater than anticipated. The machine has an expected life of 20 years. With compound interest at 6%, $1 will amount to $3.20 in 20 years. What deduction should be made from the purchase price to compensate the buyer for the additional expense in operation incurred?

6 In making an economic comparison between two dissimilar things that will accomplish the same purpose, what elements would you consider and on what basis would you make your study?

7 How much could the owner of a plant afford to pay for an automatic sprinkler system that would effect a net saving in insurance of $1000 per year? [Interest rate 6%; life of equipment 20 years.]

8 What is a corporation? How is it organized, established, managed and terminated? What advantages does it have over a partnership?

9 An electrochemical company has a metal reduction plant, the greater part of which is a hydro-electric plant, the energy from which will go to waste if not used in the production of metal.

The company has $2,000,000 of 6% bonds outstanding.

Taxes are $30,000 per year.

Company overhead is $100,000 per year.

Ordinary charges to the reserve fund are $50,000 per year.

The capacity of the plant is 10,000,000 pounds per year.

The production cost is 3 cents per pound for labor.

Raw material costs 1 cent per pound of metal produced and is purchased from outside sources.

The output has sold for 10 cents per pound.

With the arrival of the depression, the demand for the product drops to 50% of the plant capacity and the price falls to 9 cents per pound.

(Continued in Next Issue)

The New York State Society

(Continued from Page 5)

32. Voluntary cooperation of individuals and corporations has been secured in stopping the misuse of the term "Engineers."

33. Voluntary cooperation of State and Municipal Civil Service Commissions has been secured in requiring a professional license as a prequalification for engineering positions.

34. Courts have gratefully welcomed the advice and recommendations of the State Society in cases related to the Engineers' licensing law.

35. We have consistently supported essential public works and construction programs to relieve unemployment.

36. Through the activities of our Chapters in civic problems and improvements, we have advertised the public-mindedness of the Engineer and his capacity for leadership in public service.

37. Through our activities, public addresses, and the press, we have advanced public understanding, recognition and respect for the Engineer to a point never before realized in this or any other state.

What It Plans to Accomplish

1. Perfection of the State licensing law to make it fully effective.
2. Elimination of present exemptions in the State licensing law.
3. Every Engineer in the State to be a licensed Professional Engineer.
4. Every licensed Professional Engineer to be a member of the State Society.
5. A County Chapter in every County.
6. The designation "Engineer" permitted only to licensed Professional Engineers.
7. More adequate enforcement of the licensing law.
8. All income from licensing fees to be used for administration and enforcement.
9. A full-time paid Secretary and staff of investigators to be maintained by the State for the administration and enforcement of the licensing law.
10. Official recognition of the State Society in the administration of the licensing law.
11. Correction of any local news, ordinances, or rulings conflicting with the State licensing law.
12. Stopping any legislation tending to restrict the rights of practice of Engineers.
13. Stopping all practice of Engineering by non-engineers.
14. Reorganization of the State Classified Service list on a proper basis of titles, qualifications and salaries for Engineering positions.
15. A drive against so much Engineering work being done by government agencies in competition with Engineers in private practice.
16. Stimulation of public works and construction programs to relieve unemployment.
17. A persistent drive against fee competition and free engineering services.
18. Education of officials and the public on the proper way to engage Engineering services.
19. Violation of professional ethics to be made legal ground for revocation of license.
20. Cooperation with the State Licensing Board in eliminating the unqualified and the unfit.
21. Representation of Engineers in the reorganization of county and city governments.
22. Appointment of Engineers on public boards, councils, and committees.
23. Election of Engineers to public office.
24. Representation of Engineers in planning State and local legislation involving governmental efficiency, public works, and Engineering interests.
25. Continued retaining of best legal counsel to represent the interests of the Profession in legislation, enforcement, and civic affairs.
26. Furnishing speakers to address audiences on public and professional problems.
27. An intensive program of newspaper publicity to acquaint the public with the accomplishments, qualifications, and ideals of Engineers.
28. Protection of the economic interests of Engineers in public employ and private practice.
29. Cooperation with Engineering colleges in raising their admission requirements and unifying their standards.
30. Selective limitation of engineering students.
31. Strengthening the curricula of Engineering colleges in cultural studies and economics.
32. Simplifying and unifying the system of Engineering degrees.
33. Encouraging the requirement of cultural college training as a prerequisite for admission to Engineering schools.
34. Qualification for license, for membership in national technical societies, and for professional degrees to be made coordinated and simultaneous.
35. Establishing in this State a system of counsel and guidance for prospective Engineers extending from high school to final admission into the Profession.
36. Unification of high qualification standards for licensing in all States.
37. Simplification of procedure for reciprocal licensing in all States.
38. Extension of Engineers' licensing to all States.
39. Unification of State Societies of Professional Engineers.
40. Recognition of the scientific qualification of Engineers in the analysis of social, economic and governmental problems.
41. Stimulating governmental appropriations for valuable Engineering surveys and researches.
42. High standards of compensation for Engineering services.
43. Maintaining a united front for the Engineers of this State.
44. Developing a clearly-recognized line of demarcation between the Engineer and the non-engineer.
45. Developing opportunities for public service by Engineers.
46. Developing the spirit of all Engineers being united in one professional brotherhood.

General News

WINTER MEETING

Albany, February 4th, 1933

One of the most important meetings the Society has ever held will take place at the Hotel Ten Eyck, Albany, on Saturday, February 4th, next.

Frederick H. Zurmuhlen, Chairman of the Membership Committee, is State Chairman for the occasion. Albany Chapter is sponsoring the meeting. President Sheldon of the Chapter has appointed Thomas A. Devane as chairman of the local committees which are listed under Chapter News and which will care for publicity, speakers, arrangements and all other essential matters.

Every Chapter is requested to send at least two official representatives and all who can attend are urged to be present. Several matters which may determine the future of the Society will come up for decision. A united front and a unanimity of opinion and action must be determined upon in order to preserve its integrity.

Detailed announcements of the meeting are being forwarded to all Chapters.

Your attendance is urgent.

MEETING OF THE EXECUTIVE BOARD

New York State Society of Professional Engineers

The last meeting of the Executive Board for the year 1932 was held on December 1st at the Murray Hill Hotel, New York.

The following officers and directors were present: President Steinman, Messrs. Hutchinson, McKee, Sells, Sheridan, Watt, Bartley, Hausmann, Kidder, Biele, Ohmes, Johnson, Burke, Stevens, Riedel, Harris, Fox, McKenna, Desmond, Weiss, Hochstadter, Zumuhlen, Welsch and Perrine.

Mr. John Avery, Mr. Edmund J. McCormick and Mr. George Vanderwerken were invited to present reports on matters of interest to the Society and they participated in the discussion of the Board.

The report of Financial Secretary Ernest F. Fox showed 1756 members in good standing. Despite the prevailing conditions the Society has maintained a steady growth in membership. The losses due to financial difficulties upon the part of members have been offset by several hundred acquisitions during the past year.

According to the report of Treasurer P. M. Corry there is on hand a balance of $973.32.

Chairman Frederick H. Zurmuhlen reported that a Chapter had recently been formed in Genessee County and that steps were being taken to create Chapters in Rockland and Ulster Counties. The cooperation of Albany Chapter and of Mr. Bode were especially acknowledged. The zeal and success of the Chairman of the Membership Committee were commended by the Board.

In the absence of Arnold Chapman, Chairman of the Legislative Committee President Steinman advised of the proposal of architects to reduce the cost of buildings exempted from the scope of law from $10,000. to $5,000. The Board approved of the proposal. President Steinman also reported that the Society had reason to believe the architects would fulfill the pledge of their Licensing Board and sponsor legislation to eliminate section 300 of the Multiple Act.

Past President Sheridan reported on several violations of Ethics, but advised that investigation disclosed the violators were not members of the Society. In two instances Chapters have invited engineers, non members, to appear before their Ethics and Practice Committees with a view to effecting the cessation of improper methods. The results of this procedure will be noted with interest. Mr. Sheridan also advised that despite frequent requests only two Chapters had adopted their own Codes of Practice. The desirability of having each Chapter create and adopt a code predicated upon that of the Society was stressed.

The Publicity Committee reported that material concerning the Society and its activities was sent to various parts of the State and that through Chapter cooperation the press in Buffalo, Rochester, Albany, Brooklyn, Queens and other cities and counties noted and commented upon the efforts to restrict the use of the term engineer.

The American Engineer, the Society publication, will appear in more attractive form and increased size after the new year.

Senator Thos. C. Desmond described the movement under way for the formation of a State Engineering Council similar to the National Engineering Council at Washington. Such a council would consist of representatives from various engineering societies. The objects of the council wou be to sponsor and participate in legislation and other political matters pertaining to engineers. A meeting to be attended by representatives of the several national societies, selected individuals and the Rochester Engineering Society was scheduled for Tuesday, December 6th. (Note:—The meeting was held and a decision to go forward with plans, reached by those present. Mr. H. A. Kidder was selected as Chairman. He has since resigned the chairmanship).

President Steinman replied by pointing out that the objects of such a movement are already covered by those of the New York State Society and that such a proposal could hardly be construed as anything but an effort to displace the State Society. The entire situation was reviewed by him and the impracticability of, and lack of justification for, the council was clearly set forth.

Professor John C. Riedel, Dr. Ralph H. McKee, Mr. Arthur V. Sheridan and others heartily endorsed President Steinman's views and the entire Board concurred in the opinion that their was neither need nor justification for establishing a council in this State, or in any other where a recognized state society already existed for the purposes set forth. Vice-President Arnold Chapman expressed his disapproval of the proposal in a communication which was most favorably commented upon.

President D. B. Steinman and Admiral Frederick R. Harris were appointed a special committee to represent the Society in conferences relevant to the proposed movement and were authorized to advise the sponsors that no affiliation with the council or participation in its plans or organization as at present proposed can or will be forthcoming from the State Society.

The Board voted to retain the services of the firm of which Julius Henry Cohen, Chief Counsel to the Port of New York Authority and one of the most eminent members of the New York Bar, is head. The Society will, during the coming year, have the counsel of this firm on all matters concerning it and the profession of the State. Several problems are now in the hands of the attorneys for consideration and advice.

President Steinman was authorized to negotiate for the renewal of the lease of the offices occupied in the Grand Central Terminal Building, keeping in mind the possibility of offices in Albany.

Chairman Zurmuhlen of the Membership Committee was authorized to arrange for recalling the existing Chapter charters and the substitution of a more permanent Charter, drafted in acordance with the proposed Constitution.

The Winter Meeting of the Society was determined upon. The date is Feb. 4th and the place Albany. Mr. Zurmuhlen was requested to act as Chairman with power to select committees.

Mr. E. A. McKenna, Chairman of the Committee for redrafting the Constitution reported that the same would be ready in a few weeks.

Admiral Frederick R. Harris recommended that in view of conditions, the dropping of members for non-payment, except where there is no justification therefor, be temporarily discontinued. This was approved by the Board and similar action recommended to the several Chapters.

The question of conflict between the jurisdiction or rights of Land Surveyors and City Surveyors in New York was discussed and the matter referred to counsel for opinion.

Mr. John Avery presented forceful arguments against the appropriation of monies collected from the gasoline taxes for purposes other than the construction and maintenance of highways as specified in the law. He pointed out the great hardship upon engineers, contractors and the thousands of construction employees who are without work as a result of the diversion of highway funds. Past President Sheridan was designated to represent the Society on the State Construction Council, organized to stimulate public works, and was authorized to exercise his judgment in matters requiring decision.

Mr. E. J. McCormick of Kings Chapter, requested an interpretation of the term evaluation as used in the law. After discussion the matter was referred to the Society Counsel for opinion.

President Steinman advised that the name "American Engineer" has been legally protected by copyright. He also stated there were prospects that another State would shortly accept the American Engineer as its official publication.

The meeting adjourned at 10:30 p. m.

* * *

SOME COMMENTS ON TRITE SUBJECTS

By Readers of The American Engineer

From amongst the numerous letters commenting upon matter appearing in the American Engineer the following indicate the thought which engineers are giving to things not predicated upon pure science.

That the New York State Society and the American Engineer have so well succeeded in arousing the interest and stimulating the imagination of engineers is additional justification for the continued development and expansion of both.

To the Editor,
The American Engineer,
250 Park Ave.,
New York City.

Dear Sir:

I have been very much interested in the series of articles by Dr. Steinman entitled "Protection of the term Engineer," running in your recent issues.

I agree with Dr. Steinman that we should seek to give the term Engineer proper dignity and backing, or vice versa, we should give the Engineer a title of fitting dignity and worth.

As to the character and direction which legislation might take to secure the desired end, I take the liberty of making the following suggestions:

There is a term in the English language, that also occurs in several other languages with the same meaning as in English, that is used by members of the learned professions of the ministry, law, medicine, dentistry and university teaching, to indicate that one has learned his subject with such proficiency that he may practice or teach the same. The term comes from the latin "doceo" meaning "I teach," and is given as a title by a university in recognition of the attainment of such order of learning as will warrant one in teaching or practicing the subject learned. The term I refer to is none other than the term "Doctor." If engineering is a learned profession, then this term, as a title for the licensed Professional Engineer is as fully applicable to him as to members of the other professions mentioned above.

In former days the granting of the degree, Doctor of Medicine, carried with it a license to practice the profession of medicine in this State, without further ado. Our Medical colleges, however, as a consequence of legislation, have given up the granting of the license to practice when conferring the degree of "M. D.," the prerogative of granting the license being taken over by the University of the State of New York. There would be nothing inconsistent, if instead, our medical colleges granted to their graduates only a degree of the bachelor order, for example Bachelor of Medicine, as is now done in Canada, and left the conferring of the title "Doctor," i. e. the degree M. D., to the University of the State of New York, to be granted with the granting of the license to practice.

A procedure of this latter character is what I suggest in the case of the right to practice the profession of engineering. In the suggested procedure, the technical school would first confer the degree of Bachelor of Science in Engineering, or in some branch thereof, to the prospective engineer. Afterwards, when such graduate or "bachelor" has passed the state's professional examinations and has had the necssary experience to be entitled to a license, the University of the State of New York will grant him the license and will confer, in addition, the right to the title "Doctor."

This title has the desired dignity wherever the English language is spoken, and stamps a man, at once, as a man of learning, or a member of the learned professions, of which we hold that engineering is one. As a result, to refer again to the case of Mr. X—, if one in engineering circles says, "Here comes Dr. X—," every one present would understand that Dr. X—is an Engineer, and not merely an engineer.

I suggest, therefore, that the engineering Societies seek legislation in New York State (and elsewhere of course), by which the University of the State of New York (and corresponding institutions elsewhere) shall be empowered and directed to confer the degree, Doctor of Engineering (to be indicated by the initials E. D., or the like), together with the license to practice the profession of engineering, upon those candidates who have satisfied its requirements.

This suggested legislation would in no way interfere with those working for the degrees of "Ph. D." and "Sc. D." and using the same in the way they are now used. The obtaining of these degrees from a university, even by those intending to practice engineering, would carry or imply no license, although some credit might very well be given candidates for a license to practice engineering, who possess such degrees. This credit might very well be given in connection with the period of experience required. This indicates that the statute to be enacted should prescribe that all licensed engineers holding Doctor's degrees from the State, should write their names with the letters "E. D." appearing thereafter. The title "Doctor" used or written before a name will not necssarily imply a license to practice engineering to the one using the term as a prefix, but only proficiency in learning. The particular letters used after the name only will show the license.

The title "Doctor," notwithstanding this somewhat indefinite implication, it is believed, will prove of more value to Engineers, and the profession as a whole, than the right to spell the term "engineer" with a capital "E."

Very truly yours,
WILLIAM W. FRASER
6 East 45th St., New York, N. Y.

* * *

New York State Society of
Professional Engineers
New York City.

Dear Fellow Members:

I most heartily commend the brave fight of our Society under the excellent leadership of our able president, Dr. Steinman, to *rescue* our professional designation "Engineer" from the hands of the laity, and to *restore* it to its proper dignity. However, with great respect for the opinions of Dr. Steinman and other leaders in this fight, I beg to submit these few observations on the subject.

May I suggest that we look for the way of least resistance in the matter of establishing a distinct designation for our profession. I recommend that we all try to think of some appropriate name for our profession, either an already known and properly defined name or a new word which some member may coin. As my contribution to the subject, let me suggest that we adopt the name "TECHNOLOGIST." This old word has a Greek origin, and its definition in Liddel and Scott's Lexicon is illogical, I believe, and not suitable for us. But its definition in present day dictionaries is pre-eminently suitable to our needs. Webster's Dictionary defines 'Technology" as "Industrial Science," and Funk and Wagnall's Dictionary defines "Technology" as "The application of Science to the Arts." I would therefore say that the name "TECHNOLOGY" has a considerable amount of prestige already. In adopting it we would not have to fight for its proper definition in dictionaries or among literate peop'e. Nor is it being misused by the laity. That is we do not have to rescue or restore it. All we have to do is to protect it in the future.

Liddel and Scott's Greek-English Lexicon defines and translates "TEX-

VOAOYLIA" as a "systematic treatment of grammar." But when one looks up the parts of the word, he finds that "TEXVN" means *to make* (something) skilfully, cunningly, ingeniously; while "AOYOS" or "AOYLKOS" means the word, the knowledge, the science, the reason or logic. Hence we see that "TECHNOLOGY" means the knowledge or science or logic necessary to make something skilfully, cunningly, ingeniously.

If we adopt a new designation, we should also carry on for a time a campaign of publicity to inform the public that we have adopted a new professional designation *AND* that we abandon and renounce the name "Engineer." We should also give the public the correct future definition of "Engineer" and of our new professional designation.

Fraternally yours,
ROBERT WM. DAVIS
3629 Buena Vista Ave.
Baltimore, Md.

P. S. I wish to add that I commend most heartily the splendid articles of Ingenieur. We certainly need to turn our thoughts to Economics and straighten out the mess made by the self-styled "*Soup*erior Brains."

If we adopt a new and really distinctive name, we may be able to drop the adjective "Professional."

* * *

To the Editor of The American Engineer:—

The new Outlook's article "What is Technocracy" has aroused considerable discussion. The central ideas seem to be offshoots of Thorstein Veblen's ideas as expressed in his "The Engineers and the Price System (1921); that due to the workings of its inner contradictions, capitalism will get into such a chronic and devastating crisis that society will in desperation spontaneously call upon the engineers to take over the operations of the industries and the government. By pointing out the tendency towards an industrial society consisting principally of technicians, supervising machinery, it was concluded that the price system must collapse.

It appears that some items in the article are rather vague. For example, the section defining price system and pointing out the tendency of fixed capital to increase because of the necessity of cutting production costs in order to secure profits. Yet in the same breath, it is stated that "No social state of history has operated on other than a price system, present-day Russia being no exception;" and "Technological advancement in the past twelve years has definitely shattered all old social theory, from that of the ancient Greeks through Karl Marx up to Veblen.

Has "Technocracy" deliberately overlooked some pertinent exceptions; that primitive communistic societies had no price systems; that in order to understand the dynamics of capitalism (and not for the purpose of determining the money-price of a commodity) exchange value has been defined by one as socially useful labor (and is labor unrelated to energy?); that in Russia, the proportion between capital investments and consumption is not left to chance. Possibly "Technocracy" has forgotten about the existence of the State Planning Commission?

Why should we as engineers be so naive as to believe that the present powers to be will, because of "Technocracy's" forecast, surrender to us the direction of the world's affairs? It seems to me that our principal weakness consists of patting ourselves too much on the back in our own circles.

Apropos the use of theories which are only understood by the blessed dozen, may it be said that boiling eggs with the aid of a chronometer instead of an Ingersoll lends no greater dignity to the eggs.

Respectfully,
WILLIAM LEIBOWITZ
181 Rockaway Parkway,
Brooklyn, N. Y.

Comment: Some deletions have been required but the constructive thought and recommendations are retained.

* * *

CAMPAIGN AGAINST MISUSE OF TERM ENGINEER CONTINUES

The efforts to curtail the promiscuous use of the term "engineer" are bearing fruit. Newspapers in various parts of the State are commenting upon the same and many reported misuses are being stopped upon representations from the Society.

Following are several examples:

"Albany News" Friday, Nov. 18, 1932
ENGINEERS MOVE TO PROTECT TITLE

Plumbers, insurance agents and even fumigators having adopted the designation "engineer" as applied to their vocations, the New York State Society of Professional Engineers has launched a campaign to protect the title.

The Society has asked its members in the Capital District as well as elsewhere to aid in suppressing the growing tendency to apply the designation "engineer" to the work of men who have not "invested many years in professional education and arduous professional training in order to qualify as an engineer."

"Albany Knickerbocker Press"
November 18, 1932
PROFESSIONAL ENGINEERS TRY TO ENGINEER USE OF TITLE

The New York State Society of Professional Engineers has asked its members in the Capital District to join in a campaign to stop abuse of the designation "engineer."

"Engineers themselves have at last come to the realization," says an official statement, "that the misappropriation of their designation tends to create confusion and derogatory misconception in the public mind as to the true nature and standing of the profession."

In an appeal to Albany members of the society, Dr. D. B. Steinman, president of the New York State Society of Professional Engineers, pointed out that 'the individual engineer has invested many years of his life in professional education and arduous professional training in order to qualify as an engineer." 'The profession is investing decades of united effort to win public recognition and esteem for those who bear the title engineer," he said. "All of this investment is nullified if the use of the term engineer is left unprotected."

"So long as the plumber, the radio mechanic, the insurance agent, the truckman, the fumigator, and others may freely appropriate the designation "Engineer," the effort to secure unique public appreciation of the Engineer is thwarted."

Executive Offices of
R. H. MACY & CO., INC.,

New York December 17, 1932.

Dear Mr. Steinman:

Before we ran the advertisement to which you were good enough to call my attention, we submitted it to a lot of engineers and they read it and told us they didn't think there was any possible slur in it on the profession.

They were all intelligent fellows and we took them at their word. We are very careful about that sort of thing always, or we try to be, and we aim always to make sure that our occasional lapses into good nature or colloquialism shall not offend anyone.

Apparently our foot slipped here, despite our precautions, and I hope you will take this letter as a comprehensive apology for any wounded feelings which we may have caused.

The operations of our entire business are based on engineering of various sorts so that if any slur had been meant, it would have tarred us with the same brush. Of course, none was meant.

I can't honestly believe that any genuine harm has been done to anyone—but if that be the case, I am VERY sorry.

Sincerely yours,
PAUL HOLLISTER
Executive Vice-President

D. B. Steinman, Esq.,
N. Y. State Society
of Professional Engineers,
Grand Central Terminal,
New York City.

"Rochester Times Union" Dec. 20, 1932
PROTECTING NAME "ENGINEER"

"Protection of the title "Engineer" is being actively forwarded by the New York State Society of Professional Engineers.

"No other learned profession, says D. B. Steinman, president of the society, tolerates the unauthorized appropriation of its professional designation.

"When one comes to think of it, there assuredly is a big crop of "engineers" in this, that or the other line. It is not surprising to hear that many of those assuming the designation lack professional education and training.

"Engineers having such professional training consider that in seeking legislation and licensing laws which will give an opportunity to prevent unauthorized use of the title they are protecting not only themselves but the public."

Comment: The above have been selected because several are from newspapers widely known in upper New York State and the other is from one of the world's greatest mercantile establishments, located in the City of New York.

MAGNANIMOUS SOCIETY

Some Engineers Receive Crumbs At Its Hands

The plight of engineers is referred to by the press of Westchester and New York Counties in the following statement, which has been excerpted from the Tuckahoe Record of December 8th and which subsequently appeared in prominent New York papers:

ENGINEERS ARE GIVEN EMPLOYMENT

"More than 140 otherwise unemployed engineers of Westchester County received jobs during the year ending October 1, through the efforts of the Professional Engineers Committee on Unemployment, according to a report recently submitted by Leslie G. Holleran, Chairman, Westchester Area, to the headquarters of the committee.

The records show in detail, the interesting and varied work done by engineers who averaged a salary of about $20. per week. Many a truck was driven by a Doctor or a Bachelor of Science. Picks and shovels rose in unison when someone rendered his Alma Mater song. These engineers were gardeners, landscapers, clerks, stenographers, machinists, toymakers, sporting equipment repairmen, interior decorators, supervisors of construction, gas station attendants, salesmen, in fact "jacks-of-all-trades." Eleven men attacked the "hard nut" of house to house canvass as representatives of the Bond Oil Company with reasonable success. A variety of labors were performed by these men."

Comment: The above contains more pathos than bathos. Actually nine out of every ten men in the magnificent engineering corps built up in the County and Parkway Commissions of Westchester have lost, or are about to lose, their places and the remainder will recive about 40% reduction in salary. The great increase in wealth in this, America's richest residential county, during the past fifteen years was largely the result of these two splendid engineering staffs, and now, ironically enough, the creators lose their jobs whilst the tax eaters retain theirs. And this is a highly developed civilization in which we live. Is it?

* * *

AMERICAN SOCIETY OF MECHANICAL ENGINEERS

Annual Convention

The 53rd Annual Meeting of the Society was held in New York December 4th-9th, 1932. A total of more than 2000 persons attended the various sessions and representatives from every state as well as from several foreign countries were recorded.

The Annual Dinner occurred at the Hotel Astor on Wednesday, December 7th. General James G. Harbord, was the principal speaker.

A. S. M. E. News Suspends Publication

With the following statement the A. S. M. E. News has ceased to be, for at least an indefinite period.

"As an economy measure, authorized by vote of the Executive Committee of Council at its meeting of December 20th, the A. S. M. E. News suspends publication indefinitely with this issue.

In deciding to authorize suspension of the A. S. M. E. News the Executive Committee followed the recommendation of the Committee on Publications, which had made a thorough study of the questions involved.

It was recognized that certain notices and reports of Society, Division, and Section meetings would require publication, and such of these as appear to be appropriate and valuable are to be included in Mechanical Engineering. However, inasmuch as no appreciable saving in publication expense can be made without a drastic reduction of the total volume of the material now published in the A. S. M. E. News, much of it must be regretfully omitted.

The selection and treatment of material to be included in Mechanical Engineering under the new arrangement wil be made in conformity to the editorial policy of that magazine."

The News has furnished numerous items for this publication. The American Engineer regrets to learn of the suspension but appreciates the circumstances.

* * *

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS

Winter Convention—Jan. 23-27, 1933

The following official announcement comes from the Institute:

ANNOUNCEMENT

THIS YEAR'S WINTER CONVENTION, which will be held with headquarters in the Engineering Societies Building, New York, January 23-27, will have all the splendid features of past winter convention programs. Fourteen technical sessions, a smoker, medal presentation, lecture, dinner-dance, and a variety of inspection trips assure a busy and profitable week with ample opportunity for enjoyment.

THE EDISON MEDAL awarded to Bancroft Gherardi "for his contributions to the art of telephone engineering and the development of electrical communication" will be presented to him in the Engineering Auditorium on the evening of Wednesday, January 25, at 8:15 o'clock.

THE SMOKER will be held in the Engineering Societies Building on Tuesday evening, January 24. Schrafft will serve a buffet-dinner at 6:00 p. m., and later a variety of entertainment will be offered in the auditorium. Tickets $2.75 per person.

THE DINNER-DANCE, which always affords much pleasure to those in attendance, will be held this year in the Ballroom of the Hotel Roosevelt at 7:30 o'clock on the evening of Thursday, January 26. Reservations may be made in advance for tables seating eight or ten people. Tickets $5.00 per person.

FOR THE LADIES in attendance, in addition to some of the features already mentioned, a luncheon and bridge has been arranged at Engineering Woman's Club on Tuesday, January 24, by the ladies' committee, Mrs. E. B. Meyer, chairman. During the convention information will be available at the ladies' headquarters as to theaters, shopping districts, etc.

THE BOARD OF DIRECTORS will meet at Institute headquarters, Room 1001, Wednesday, January 25, at 2:00 p. m.

REDUCED RAILROAD RATES of half fare on the return trip over the same route will be available to members and guests, provided 100 certificates are validated at the registration desk. Present the enclosed slip to your local ticket agent. Consult him regarding the territory and dates applicable, and obtain your certificate authorized by the railroad passenger associations.

REGISTER IN ADVANCE by filling in and mailing the enclosed ADVANCE REGISTRATION CARD. Your badge will be ready on arrival and you will avoid congestion at the registration desk.

H. H. HENLINE,
National Secretary.

* * *

RADIO TALKS BY ENGINEERS

New Jersey Association Sponsors Program

The Radio Committee, appointed by President Noack, has arranged for a series of broadcasts over Station WOR, Newark, N. J., between 3:30 and 3:45 p. m., on the dates given below:

Jan. 26th: Herbert Heilmann, The Engineer as a Public Servant. Subject to possible rearrangement, the following names and subjects are assigned: Feb. 2nd: William A. Stickel, As the Engineer Sees the Traffic Situation; Feb. 9th: O. H. Amman, As the Engineer Sees the Need of a Midtown Tunnel; Feb. 16th: Hugh A. Kelly, Overlapping Governmental Functions and Expense; Feb. 23rd: J. Wallace Higgins, As the Engineer Sees the Purposes of a Municipal League; March 2nd: Vincent Scanlon, As the Engineer Sees the Need for Regional Planning; March 9th: Glenn S. Reeves, As the Engineer Sees the Rapid Transit Situation; March 16th: John L. Miller, As the Engineer Sees the Matter of Public Recreation; March 23rd: Arthur Noack, As the Engineer Sees the Necessity for Lowering Utility Rates; March 30th: Arthur S. Hobby, As the Engineer Sees the Matter of Municipal Wastes.

* * *

TO READERS AND ADVERTISERS!

The publishers of the AMERICAN ENGINEER have enlarged their publication with 8 more pages beginning with this issue.

This was made possible through the success of our Engineering Societies Activities. See page 5.

Great gain in circulation and national industrial recognition through the advertising columns have enabled us to grow notwithstanding the serious economical crisis during the first two years of its existence.

ADVANCED STUDIES FOR DISENGAGED ENGINEERS

Professional, Industrial and Business Courses

The Professional Engineers Unemployment Committee, through its General Chairman Admiral Frederick R. Harris, has been appealed to by Engineering Foundation to assist in disseminating information concerning, and to aid financially in a small way in conducting, six courses of advanced study in technical and business subjects for disengaged engineers. The courses will run from January to May inclusive and the teachers will be mostly men who have taught but who are now unemployed, or possessed of but minor engagements.

The following announcement has been issued by Engineering Foundation:

To assist disengaged engineers in improving their professional equipment during the Winter and Spring, the Engineering Societies and Colleges in the New York-New Jersey Metropolitan District are arranging for study courses in engineering, economic and business subjects under the auspices of The Engineering Foundation.

Unemployed or volunteer teachers will conduct the engineering courses under the supervision of members of the faculties of Columbia University, New York University, Stevens Institute of Technology and the Polytechnic Institute of Brooklyn. The business courses will be special ones given by the faculty of the School of Commerce of New York University.

Rooms for class use will be made available in Engineering Societies Building. Engineering Societies Library will put text and reference books at the disposal of the class members.

Applicants will be required to show qualifications for entering the classes, and to keep up with the prescribed work. *There will be no charge.*

This adult educational activity is sponsored by:

Robert P. Lamont, President, American Iron and Steel Institute.

A. G. Pratt, President, Babcock and Wilcox Company.

Robert Ridgway, Consulting Engineer, Board of Transportation, City of New York.

Alfred P. Sloan, President, General Motors Corporation.

Morse A. Cartwright, Director, Association for Adult Education.

A. W. Robertson, Chairman, Westinghouse Electric and Mfg. Co.

J. W. Barker, Dean of Engineering, Columbia University.

Collins P. Bliss, Dean of Engineering, New York University.

John T. Madden, Dean, School of Commerce, N. Y. University.

Harvey N. Davis, President, Stevens Institute of Technology.

E. J. Streubel, Dean, Polytechnic Institute of Brooklyn.

H. A. Kidder, President, United States Engineering Trustees, Inc.

H. Hobart Porter, Chairman, The Engineering Foundation.

Admiral F. R. Harris, General Chairman, Professional Engineers' Committee on Unemployment.

George T. Seabury, Secretary, American Society of Civil Engineers.

A. B. Parsons, Secretary, American Institute of Mining & Metallurgical Engineers.

Calvin W. Rice, Secretary, The American Society of Mechanical Engineers.

H. H. Henline, Acting National Secretary, American Institute of Electrical Engineers.

Six courses are being offered in the following subjects:

1. Business Finance, 2. Sales Engineering, 3. Power Plant Engineering, 4. Structures and Mechanical Equipment of Buildings, 5. Industrial Applications of Electricity, 6. Industrial Management.

This fine opportunity is open only to unemployed engineers who have the requisite education for pursuing the work of the courses they may select. A person may register in more than one course.

The courses are to be given in the forenoons beginning 9th January and continuing 20 weeks, to the end of May.

Requests for application blanks accompanied with statements of educational qualifications, should be addressed to P. H. Littlefield, Manager, in care of The Engineering Foundation, 29 West 39th Street, New York, before 3rd January 1933.

Applications should be filed as soon as possible.

H. HOBART PORTER, Chairman
The Engineering Foundation.

APPLICATION FOR ADMISSION TO PROFESSIONAL COURSES FOR DISENGAGED ENGINEERS

January 9, 1933 to May 26, 1933

Engineering Societies Building — **29 West 39th Street, New York City**

Note: Certain standards will be required to qualify applicants for the courses selected. There will be no charge. It is necessary to have the following information.

1. Name .....
2. Home Address .....
3. Are You Employed? .....Age .....
4. Name of Last Employer .....
   Address .....
   Position Held .....
5. Education: (Name of College)..... Course)..... (Year)..... (Degree).....
   (Secondary or High School) .....(Year Graduated) .....
6. Check Courses Desired

Monday and Thursday	Tuesday and Friday
9 to 10—Power Plant Engineering	9 to 10—Industrial Applications of Electricty
10 to 11—Business Finance	10 to 11—Sales Engineering
11 to 12—Buildings and Mechanical Equipment of Buildings	11 to 12—Industrial Management

NOTE: Engineers qualifying for courses elected will be advised of admission by mail. Courses may be restricted at the discretion of the administrators.

If interested cut from magazine and mail.

CHAPTER NEWS

WESTCHESTER COUNTY

The Westchester County Chapter held its regular monthly meeting on December 21st in the County Court House, White Plains.

A highly instructive illustrated lecture was delivered, through the courtesy of the New York Telephone Company, by Mr. Herbert J. Kelly, on the subject of 'Telephone Research and By-Products."

A resolution was adopted by the Chapter which registered a protest against the continued diversion of gasoline and motor vehicle tax funds to other than highway purposes on the ground that such diversions are contrary to law, that they result in depriving motorists of the State of benefits intended by law and that they will cause further loss of employment to thousands of laborers, mechanics and engineers who are dependent upon highway construction for a livelihood.

Assertions were made that diminished governmental construction operations had brought about general personnel reductions in county and municipal staffs and that engineering departments were forced to bear a markedly disproportionate share of such personnel reductions. A committee was appointed under the chairmanship of Mr. John Avery, Vice-President of the Chapter, to investigate and report upon the matter.

Mr. James W. Armstrong, Superintendent of the Department of Buildings of the City of Yonkers and President of the New York State Building Superintendents Association attended the meeting and personally requested the assistance of the Chapter in the task of preparing a County Building Code. His request was made at the suggestion of the Westchester Architects' Association which is participating in the work. The creation of a county-wide committee is planned with sub-committees on the several requisite sections of the proposed code. Mr. Harold W. Watt, President of the Chapter, was authorized to appoint a committee with Mr. John Avery as "contact man" to collaborate in this enterprise.

This important activity recalls the fact that in 1929, Hon. James J. Walker, then Mayor of the City of New York, invited the Merchants' Association of New York to prepare a draft revision of the Municipal Building Code of that city. Responding to that invitation the Merchants' Association created executive, advisory and technical committees composed of individuals who were selected on the basis of their technical and professional knowledge without regard to their affiliations in organizations. The membership of those committees, made up largely of licensed professional engineers and registered architects, rendered conspicuously valuable service in preparing a revised code upon which public hearings will be held by the Board of Aldermen during the present month.

In the present instance a highly significant and important improvement in cooperative procedure is being followed: the governmental representative now appeals for assistance, not through an intermediary powerful organization to make the necessary individual professional contacts, but directly to those professional organizations which can from their own membership furnish those technical services which are essential to the success of the undertaking.

A procedure which was considered impossible or undesirable in 1929 is adopted today. In 1929 the State Society was not so well known, organized or successful as, it is today. Its Chapters had not yet satisfactorily demonstrated their ability in the field of civic endeavor. But at the end of 1932 the confidence of the people of a great county in the worth, permanence and sincerity of purpose of a young but highly progressive organization of professional men had become so firmly established that a governmental call comes to it to render (in association with a brother profession) a great public service for the public good.

To have reached so high a place in the public esteem is a proud accomplishment. And Holleran, Watt, Avery, Welsch, Barnett, MacBeth, Hayden, Thompson and (the list is interminable!) all the other brave spirits of the pioneer organization days may well experience that thrill of satisfaction which comes with the realization that their work was well done.

It was stated at the meeting that a committee of citizens of Yonkers (the largest city in the county) has recommended that the entire engineering force of the city (some of the members of which have worked for the city for 35 years) be ousted and that their duties be assigned to "work relief men" employed at Four Dollars ($4.00) a day.

It is interesting to compare this recommendation with the following statements, made in the summary of the report just published by President Hoover's Committee on Recent Social Trends: "Certainly every effort should be made to prevent any lowering of the plane of living," and "*The effective limit upon production* is the limit of what the markets will absorb at profitable prices, and this limit *is set by the purchasing power of would-be consumers.*"

The Yonkers group recommends both lowering the plane of living and decreasing the purchasing power of members of a profession noteworthy for its constructive contributions to social progress. Engineers, architect and fair minded citizens everywhere might well cooperate to defeat this and similar anti-social recommendations which tend to make recovery from the present depression more difficult.

President H. W. Watt announced the appointment of Mr. Joseph Barnett, a Director of the Chapter, to serve as a member of Mr. Fred H. Zurmuhlen's "On to Albany" committee. The presence of these and other "go-getters" on this committee gives assurance that the winter meeting of the State Society will be an outstanding success.

* * *

NEW YORK COUNTY

A meeting of the New York County Chapter was held in Havemeyer Hall, Columbia University on December 15th and presided over by Professor W. J. Krefeld.

A lecture was delivered by Mr. A. W. Lawrence of the Sperry Products Co. on the "Development and Present Day Efficiency of the Sperry Rail Detector Car." A demonstration was given of the operation of the car in electrically detecting hidden defects or flaws in rails and, it has been reported by Mr. F. A. Rossell, Secretary of the Chapter, that the efficiency of the apparatus was uncanny. The lecture was illustrated by lantern slides and motion pictures and if the description received has not been overdrawn it must have been particularly delightful.

At the conclusion of the meeting the members adjourned to the Faculty Club where the customary social amenities were enjoyed.

* * *

NASSAU COUNTY

Mr. J. R. P. Goller, Secretary of the Nassau County Chapter, has reported that the annual meeting of the Chapter was held on December 8th at the Lido Club in Hempstead.

A resolution was submitted recommending that where public welfare is concerned it be made mandatory that a licensed professional engineer be appointed on zoning commissions and boards of appeals and that the Legislature enact laws to make such appointments compulsory.

The following officers and directors were elected: Harold C. Stevens, of Hempstead, President: George G. Vander Kerken of Lynbrook, Vice-President; David C. Will of Great Neck, Treasurer; Fred W. Malkmus, of Hempstead, Secretary; Stephen Smith, Irving Hockstadter, and Charles H. Weckerle, Directors. Cordial congratulations are extended to the new officers and directors; may their success be outstanding.

* * *

ORANGE COUNTY

Mr. George Hutchinson, President of the Orange County Chapter, forwards the information that the Chapter recently had the honor of welcoming Mr. Arnold G. Chapman, Vice-President of the State Society, who delivered a most interesting and informative lecture on the Port of Albany. The writer had the pleasure of listening to a discussion of that subject by Mr. Chapman and can vouch for the truth of the statement made by Mr. Hutchinson.

KINGS COUNTY

The Kings County Chapter held a meeting at the Brooklyn Engineers' Club on December 15th.

A program of Legislative matters was the main topic of discussion. Certain revisions in the License Law were suggested. The Revised Building Code now in the hands of the Board of Alderman was the subject of consideration.

* * *

MONROE COUNTY

Word has come from Mr. R. H. Hendrickson, Secretary-Treasurer of the Monroe County Chapter, that a meeting of the Chapter was held on December 19th in the Rochester Chamber of Commerce at which Mr. Charles W. Marvin presided.

President Marvin read notifications which had been served by the Chapter upon public officials, the Bar Association, and other organizations relative to the latest provisions of the Engineers' License Law.

Attention of the members was called to an editorial appearing in a conspicuous space on the editorial page of the Rochester Times-Union which discussed the campaign being carried on by the Chapter to prevent the misuse of the term "engineer."

Notice was given that the annual meeting and election of officers would be held on January 16th and a nominating committee composed of Messrs. Lewis Kohl, Meloy Smith and David Mulryan was appointed to submit nominations for officers and directors to serve for the coming year.

* * *

ALBANY COUNTY

Mr. E. E. Sheldon, President of the Albany County Chapter has communicated with Mr. Fred H. Zurmuhlen, Chairman of the "On to Albany" Committee, expressing his gratification upon the selection of Albany as the site of the Winter Meeting of the State Society. He has advised that as requested he has appointed the following members of the Chapter to constitute a "Preparations Committee," each with duties as indicated and all to function under Mr. Zurmuhlen's jurisdiction:

Thomas A. Devane, Chairman, tickets; Arnold G. Chapman, program; William R. Davis, publicity and contact with Chamber of Commerce; Frank X. Bode, reception; William J. Picard, hotel; E. E. Sheldon, speaking.

Last year's Winter Meeting at Albany was one of the most successful meetings ever held by the State Society. It appears that Albany Chapter is organizing to establish a new record. And as the Albanians are organizers par excellence, we look forward with great expectations.

The following officers and directors were recently elected to guide the Chapter during the year 1933.

President, Edward E. Sheldon; Vice-President, Thomas A. Devane; Secretary-Treasurer, William J. Picard.

Directors for one year:

Frank X. Bode, Col. Herbert S. Wilgus.

For two years:

Harvey O. Schermerhorn, William Russell Davis.

ERIE COUNTY

Mr. Fletcher Burke of Buffalo has advised that the Federal Government has authorized the erection of a Federal office building and several post-office buildings in the Western part of the State. He points out the desirability of having licensed professional engineers employed to design and supervise the construction of the engineering features of these and other Federal buildings and advocates that engineers en masse urge upon their Congressmen and Senators the necessity of establishing this requirement.

Information also comes from Mr. Burke that the American Engineer is carried on the display shelves in the technical reference room of the Buffalo Public Library—an accomplishment for which he modestly claims a modicum of credit simply to suggest what might be achieved elsewhere in bringing our magazine to the attention of the public.

* * *

RICHMOND COUNTY

Mr. E. P. Neuschwander, Chairman of the Publicity Committee of Richmond County Chapter, recently transmitted a brief report of the activities of the Chapter which concluded with the note "Richmond Chapter expects to send a good delegation to the Albany Convention." And a red arrow directed attention to the note.

Richmond engineers are apparently planning in advance to make the winter meeting a "red letter" occasion. They are noted for their loyal devotion to their President, Mr. Fred H. Zurmuhlen, who has successfully led them to great heights of accomplishment during his long term of office; and as he is the chairman of the "On to Albany" committee it can be confidently predicted that the promised delegation will be numerous and enthusiastic.

The Chapter held a meeting on December 8th at the Institute of Arts and Sciences, St. George, Staten Island. The following members were appointed to serve on a nominating committee to select candidates for office for the coming year: H. B. Loomis, Chairman; Hans Neilson; Hugo Stenberg; Joseph Welch and Frank H. Conley.

* * *

QUEENS COUNTY

At the Annual Meeting of Queens Chapter held at the Medical Center on December 22, 1932 the following officers and directors were chosen.

President, J. Franklin Perrine; 1st Vice-President, Andrew K. Johnson; 2nd Vice-President, George P. Winn; Treasurer, Charles W. McInenly; Financial Secretary, Alban Mazeau.

Directors for Two Years: R. A. Fiesel, H. D. Garretson, E. G. Manning, C. S. Stratton, W. C. Kochendoerffer.

Cordial greetings and best wishes are extended to the new officers and directors. Queens set a splendid pace during the year 1932 and every indication points to an equally successful 1933.

SCHENECTADY COUNTY

Through the courtesy of Dr. D. B. Steinman, President of the State Society it has been learned that Professor Warren C. Taylor of Union College has been elected to succeed Captain Hugh Miller as President of the Schenectady County Chapter. Congratulations and best wishes for success are extended to President Taylor.

Acknowledgment is made of the indebtedness of the State Society to Captain Miller for his leadership of the Chapter during the first year of its organization and the hope is expressed that his active participation in advancing the interests of the Society and his Chapter will continue.

Compliments are conveyed to Mr. W. C. Strecker, Secretary-Treasurer of the Chapter with assurances that news of the progress of Schenectady Chapter will always be welcomed for publication.

Mr. W. C. Strecker, Secretary-Treasurer of the Schenectady County Chapter has advised that the following Officers and Directors have been elected: Prof. Warren C. Taylor, President; Morris M. Cohn, Vice-President; Werner C. Strecker, Secretary-Treasurer; William B. Landreth, Daniel A. Young, Fred R. Lindsey, Herbert D. Schutt, Directors.

* * *

ULSTER COUNTY

And still we grow! Mr. Fred H. Zurmuhlen, Chairman of the Membership Committee of the State Society, has transmitted the good news that another Chapter—Ulster County Chapter—has enlisted in the cause. On January 9th the new Chapter was organized at Kingston under the guidance of Francis X. Bode of Albany Chapter, George Zimmerman of Oneida Chapter and J. C. Watts of Troy. The following officers and directors were elected: President, George W. Codwise; Vice-President, H. D. Darrow; Secretary-Treasurer, E. P. Ward; Directors for one year, J. F. Loughran and S. K. Clapp; Directors for two years, J. A. Gutbridge and P. E. Clark.

A hearty welcome and sincere felicitations are extended to the new Chapter.

RAPHAEL J. SMYTH,
Chairman, Committee on
Chapter Activities.

* * *

IMPORTANT

Winter Meeting

Hotel Ten Eyck

Albany, Feb. 4th

PASSAIC COUNTY

The Passaic County Chapter held its fourth meeting of the year on December 15th, 1932 at the Elks Club, Howe and Garden Streets, Passaic, New Jersey, at 8:00 p. m.

An informal dinner at 6:30 p. m. preceded the meeting.

After a short business session the speaker of the evening, Mr. R. J. Dempsey, Superintendent of Port Newark Terminal, was introduced by Mr. Gerald Knight, State Director. Mr. Dempsey gave a very interesting address on the development and operation of the Port Newark project. An informal discussion period followed the address and was entered into by most of those present.

The Treasurer's Report as read indicates that only 20% of the licensed engineers in the county are active paying members of the Chapter. What is it that keeps the non-member away? Is it the meeting location, the meeting programs or the dues? Mr. Ingalls, Chapter President has called a joint meeting of the Program and Membership Committees to consider a program for interesting the non-members in Chapter activities.

The State Association Radio Program which was inaugurated by this Chapter is apparently on the road to realization.

The need for legal advice is evident when legislative proposals are considered. To meet this need Mr. Richard Lowe of Paterson, a practicing Engineer-Lawyer, was elected Chapter Honorary Counsel and will be recommended to the State Association for the same office.

The next Chapter meeting is to be held at 8:00 p. m. January 26, 1933 at the Public Service Electric Building, Prospect and Van Houten Streets. Paterson. All Passaic County Engineers start the year off right and come out to this meeting. A new and different program is promised.

E. F. WEEKS
Secretary,
200 E. 5th St.,
Paterson, N. J.

* * *

UNION COUNTY

Minutes of meeting of the Union County Chapter, Held at the Eleanor Restaurant, 1165 East Jersey Street. Elizabeth, Tuesday, December 13, 1932.

Mr. Hatfield of Scotch Plains, and Mr. R. M. Carlisle and Mr. Wenzel of the Shanferoke Coal & Supply Corporation of Delaware were guests of the Chapter.

After dinner an illustrated talk on "The Story of Anthracite" was given by Mr. Carlisle. The three reels of motion picture shown gave the story of coal in its entirety.

President MacDougall gave a brief resume of the proceedings of the State Association meeting, held recently at the Elks Club in Newark.

At the next meeting a motion picture by the International Nickel Corporation on the 'Story of Monel Metal" will be shown.

Albert E. Cooley, Chairman of the Unemployment Committee, reported that he and committee are keeping in close touch with this situation and are rendering assistance wherever possible.

Respectfully submitted,
H. JURNECKA,
Secretary.

* * *

HAVE YOU RENEWED YOUR LICENSE FOR 1933?

State Engineering Council

(Continued from Page 3)

quarters at Albany, together with the retention of the New York office, is receiving the attention of the Executive Board. Also the Society has retained very eminent counsel and its ability to properly represent the entire profession of New York cannot be questioned.

It is sincerely hoped that this effort to create a state engineering council will be abandoned. To continue the same will but jeopardize the accomplishments and aims which have been and are being so well carried forth in New York. The policies and effectiveness of state societies can be sha by all engineers becoming members thereof. The council form of organization is not conducive to effectiveness and would not meet with favor from legislators and others with whom the profession has to deal in any particular state. The legal and medical professions know this, hence their state and county organization. The national societies might well consider continuing their policies of the past, and leave legislative, social and economic problems to professional state bodies. The formation of a national academy of engineering, comprising all the great national societies and devoted to scientific and technical endeavor is a large and desirable undertaking.

Let National Engineering Council devote its efforts toward the amalgamation of the founder societies and in states where professional bodies exist leave to them (at least till they prove unequal to the responsibility) the conduct of affairs which needs must be reconciled with the conditions and laws of the states themselves.

* * *

HAS YOUR LICENSE BEEN RENEWED FOR 1933?

A Plan For Credit

(Continued from Page 6)

immediately through existing agencies and from funds already dedicated to unemployment relief and to be dedicated to unemployment relief, receive applications for funds to cover the necessities of life on a basis to be determined by the size of the family and the locality in which the applicant lives. Where it is possible for these applicants to render services on an improvement of a permanent nature, they should be employed at a living wage. Where their training and experience does not warrant them paying by services, the money should be loaned to them under promises to pay as outlined herein.

These loans could be made through local banking institutions, the government and political subdivisions safeguarding the banking institutions by reimbursing them for the moneys advanced and the cost of administration.

In addition to providing funds for the bare necessities of life, governments and political subdivisions thereof should accept the promises to pay of property owners for taxes and other governmental liens, and these notes might well be considered in the same category as tax anticipation notes.

I am submitting this plan in the belief that it will receive consideration from all right thinking men and that its adoption will eliminate all consideration of a dole or charity.

* * *

Registration of Engineers

(Continued from Page 7)

But that does not mean that the plumber or the engineman can secure registration as a "Professional Engineer," for he cannot pass the professional educational qualifications and tests required by the law. The Supreme Court of Tennessee and other courts in other States have ruled that the registration laws restrict the use of the term "Engineer" as well as the term "Professional Engineer." Other Professions have had the same problems and have solved them; surely Engineers can. This question of definition involves merely straight thinking and logical specification, and these are certainly the Engineers' forte.

(7.) Registration *does* protect the public against incompetency and dishonesty. The State Board consists of Engineers of high standing and integrity, and the applicant, through credentials, examinations, experience records, and character references, must satisfy the Board as to his professional competence, character and reputation before he is registered. Of course no human system is perfect, but the exception only proves the rule When a registered Engineer is subsequently found to be incompetent or unworthy, the statute provides for the revocation of his license; and that means not merely loss of membership in a society, but actual legal explusion from the right to practice or to offer to practice Engineering. Out of the 15,000 licenses granted in ten years by the Board in New York State, it has been found necessary to revoke only two; one of these cases involved perjury in the original application. A protective system that is 99.9 percent perfect is certainly better than none.

(8.) Membership in the leading national engineering societies does not supply the desired clear-cut criterion of professional qualifications. The Societies unfortunately differ materially in their admission requirements, and do admit non-engineers to membership. Members are admitted who do not come up to the qualification requirements of the registration laws. Moreover educational qualifications or tests are not required for membership. The Societies cannot claim to embrace all qualified Engineers; only 40 percent of the Engineers in the coun-

try are members. There is no legal compulsion to join, and there can be no legal discrimination against non-members. Moreover it is not practicable to draw an acceptable line between the Societies that should be recognized and those that should not. The legal right to practice a Profession is a matter of State jurisdiction; the State cannot delegate its responsibility to any unofficial body. National societies have been known at times to be influenced by a desire to increase membership and income at a sacrifice of high admission standards. Membership in qualified national engineering societies can be given recognition toward qualification in registration laws, but no legal recognition can be given to such membership without State registration laws. Registration is the only known way of controlling the practice of *all* the members of any Profession, and of barring the practice of those who are not.

(9.) There are some who regard registration as a restriction in business affairs but, from the viewpoint of the Profession and of the public, it is a desirable restriction. It restricts the untrained, the unscrupulous and the impostor from competing with the qualified Engineer. At a public hearing, an official of a Civil Service Commission objected to registration because it would reduce the supply of legally qualified applicants for Engineering positions and would necessitate increasing the salaries offered; whereupon a group of Engineers in Civil Service who had come to oppose registration remained to fight for it. Large corporations employing Engineers may regard the registration law as a restriction when it prevents them from conferring high-sounding engineering titles on their employees in lieu of adequate compensation, or when it necessitates paying higher salaries to secure qualified Engineers. It is a restriction on corporations and individuals who wish to use such titles as "Sales Engineer" or "Research Engineer" to mislead the public into believing that their salesmen or laboratory assistants are Engineers. It *is* a restriction on all the selfishly-motivated forces that tend to lower the standards and the standing of the Profession.

(10.) Registration will *not* work any hardship on the qualified man. Men who are engaged by large employers should secure their registration now instead of waiting until they go into practice on their own account. The employed Engineer is lacking in ambition if he neglects to register as soon as he is qualified, and he is violating the law if he is doing responsible work. If he delays, he may have to meet higher requirements for registration; but even these will be no real hardship if he is truly qualified.

(11.) The registration fee is *not* an occupational tax. It is not intended as a source of revenue to the State. The model law provides that all fees collected should be used for the administration and enforcement of the law. Fees vary from $5 to $25 for the original registration certificate and from $1 to $5 for annual renewal, in the different States. Engineers should not begrudge this comparatively slight contribution to protect their years of investment in study and training for their Profession. In Colorado, where a surplus accumulated, the Profession secured the passage of a bill to expend the fund for the establishment of a large Engineering reference library. It is for the Profession to estimat how small the fee can be made with assurance of adequacy to cover the expenses of administration of the law. In time legislators will be educated to appreciate that at least half of the tal cost should be contributed by the State, since the law is primarily for the protection of the public.

(12.) The slight expense imposed on Engineers as a registration fee is trifling in comparison with the benefits derived. Anything that raises the standards of recognition and recompense of the Profession benefits all Engineers in it. The man who has invested many thousands of dollars in education and many years of his life in training for the Profession, should not hesitate to spend $25 on registration and $1 or $2 annually thereafter to protect this investment. Many an aspirant to practice law or medicine would gladly pay many times as much to secure his admission to practice; so would many a man who has been rejected for Engineering registration. Registration benefits the employed Engineer as well as the Engineer in private practice. The Engineer who is registered is more valuable to his employer, and can command higher compensation. Many concerns require that their employees be registered. It is an asset to a firm to be able to announce that all of its employees are registered Engineers. Large railroads, exempt under the registration laws, have directed all their Assistant Engineers to secure registration, in anticipation of legal questions of responsibility that might arise. Other corporations have voluntarily instructed their men to secure registration, withdrawing the title of Engineer from those that did not. Some corporations anxious to have all of their Engineer employees registered, are paying the registration fees for their registration in order to be qualified to give expert testimony. Employees making the design or inspection of structures must be registered, otherwise criminal liability is incurred in a failure. Registration protects the employee against the competition of the unregistered, and enhances his value to his employer. Twenty-five dollars is a small enough fee to pay, once in a lifetime, to secure these advantages and to record one's admission to the Profession. If any worthy Engineer cannot afford to pay the fee, and needs his registration to secure work, the Profession will gladly provide a fund to help him.

(13.) Registration laws are *not* unconstitutional if they are properly drafted. If registration laws are unconstitutional, then the medical and legal practice acts (in force more than half a century) are invalid, as well as the registration laws of dozens of other professions. The courts have consistently recognized the validity of those laws, and have convicted and sentenced thousands of persons for violating them. Convictions and decisions have also been secured under the Engineers registration laws, in the Supreme Court and lower courts. In only one case, of the 26 States having Engineers registration, was the law repealed on a technicality, but a revised law was promptly enacted. Some of the earlier laws were crudely drafted, but they remained valid and effective despite their shortcomings. The Model Law has had, in its preparation, the benefit of all past experience, and the review of eminent counsel. It is offered as the best draft of a registration law thus far developed by the Profession, with all legal requirements carefully observed. The "grandfather clause" is retained in order to remove the only objection that has ever been brought against such legislation on constitutional grounds, and a "saving clause" is included to preserve the validity of the rest of the law in the remote eventuality that any section in it might be declared invalid. The constitutionality of such legislation is now well established.

(14.) That one of the advantages of registration is to reduce the number of men holding themselves out as "Engineers" and thereby to raise the standards of compensation of the Profession is freely admitted. No man need be ashamed of striving to secure more adequate recognition and recompense for his Profession. But the foregoing is not the sole reason for registration. No registration law could be enacted unless it involves the principle of protection of the public. This benefit has been established. Protection of the Profession, its standing and its standards, is a concomitant benefit. The two benefits are inseparable. The elimination of the unqualified and the unworthy certainly benefits the public and the Profession. Protection of the public is the legislative justification and establishes constitutionality. If benefits also accrue to the Profession, that should not be held as an objection to the registration law. The other learned Professions, such as Law and Medicine, have long had laws in all the States regulating Professional admission and practice; they have not thereby sunk to the level of "labor unions." On the contrary, public respect and confidence have grown in proportion to the virility with which those Professions have used their registration laws to maintain high standards and to eliminate the untrained and the unethical.

(15.) No State can afford to be without an Engineers' registration law. No State can afford to become the dumping ground for the incompetent and the unscrupulous who are barred from the Profession in other States. The individual Engineer, if his own State has no registration law, is handicapped in securing reciprocal registration in other States; registered or unregistered Engineers from all other States can come into his territory to compete with him, but he cannot practice in their States. Above all, the Profession in any State cannot afford to be left out of the progressive advancement and accomplishments of the Profession in other States. Registration legislation is the key to such accomplishment for the advancement of the Profession.

* * *

HAS YOUR LICENSE BEEN RENEWED FOR 1933?

National Economics

(Continued from Page 8)

Engineers Ask Recognition," in that it shows that some of our professional brethren across the seas are beginning to assume their proper position in governmental and commercial affairs. Their example may well be followed by the engineers of other countries—not excepting our own.

Mr. Newman's article on "Economic Regulation—An Engineer's Suggestion" is both timely and stimulating; but, in my opinion, the proposed cure of the evil by establishing a reservoir of funds for the purpose of tiding over future depressions is insufficient. What is needed is a method of preventing the existence of such depressions. Is this feasible? I think so, provided the American people as a whole truly desire business stability and will cease abnormal speculation in prosperous times.

A short while ago I received a letter from Mr. Emanuel Lissner, a civil engineer of San Pedro, California, asking me to look over a memoir of his in relation to the existing economic conditions, and if I should approve of the suggestions offered, to bring it to public attention. I did approve of the main idea, with a simple modification that is in the line of extension of project; and I now send the memoir to you with the suggestion that you publish it *in toto*.

The crux of Mr. Lissner's paper is the suggestion that the important competing companies in each type of industry combine to form a guild and select some competent person to act as a dictator thereof, the main object being to regulate the production of each commodity manufactured by the said industry, so that the supply shall never exceed materially the probable demand. My additional suggestion was that these various dictators of industries join forces to form an Anti-Depression Syndicate, which would select a Grand Dictator to keep all the other dictators functioning properly and to whip them into line whenever necessary.

In conversations with engineer friends of mine about this scheme, several objections have been raised:

1st. The method is un-American.

2nd. It would break some of the existing Federal laws that militate against the restraint of trade.

3rd. The industries would object to being bossed by a hired man.

4th. Rebellious guild-members might refuse to conform to the general laws of the organization.

5th. It would be impracticable to find the right kind of men to serve as dictators.

To the first objection I would reply that many American methods are far from being satisfactory, and hence might advantageously be either modified or entirely abandoned.

In re the second objection, I would state, as does Mr. Lissner, that any established laws interfering with the functioning of this method would have to be repealed.

To the third objection I would answer that over-production eventually is going to be kept down by some control or other—in the last resort by new Federal laws—and that it is much better to be bossed by one's own hired man than by the United States Government with its unlimited power.

To the fourth objection I would say that during times past in this country large pools have been successfully operated, and the members thereof found it to their advantage to adhere to the established regulations.

As for the fifth objection—there are plenty of capable and honest men in this country, especially among the engineers, who could and would serve as dictators, if the salary involved were made sufficiently attractive.

Mr. Lissner's suggestion will bear careful perusal and serious study by all deep-thinking persons who are interested in the subject of his paper, which is entitled "Make This the Last Depression." Even if the reader does not see his way clear to endorse Mr. Lissner's stand, he cannot help being benefited by perusing the memoir, as it will furnish him with some new ideas and will force him to ponder deeply on a most important matter of political economy.

Respectfully submitted,
J. A. L. WADDELL,
Consulting Engineer,
142 Maiden Lane,
New York, N. Y.

Note: A portion of Mr. Lissner's article appears elsewhere in this issue.

* * *

Make This the Last Depression

(Continued from Page 9)

comparable in seriousness with those of former days. Nevertheless we have had the depressions. In fact, the bank closings of the present depression occurred after it was well under way, proving that they were the result of poor business conditions and not the cause.

Here is more evidence that money is not all powerful. In 1929, when stocks were mounting in price beyond all reason, we heard much about the bankers' ability to put a gradual brake on speculation by increasing money rates two or three per cent. Meanwhile, speculation, in place of being brought to a standstill, became more and more rampant until the market broke of its own weight. Many believe that the high money rates actually intensified speculation by attracting funds to the call market from corporations and from foreign sources. After all, it is hard to see why any speculator should have hesitated to pay interest to his broker at the rate of ten or twelve per cent per annum, when he might clear the equivalent of a year of such interest in a single session of the Stock Exchange.

From the foregoing I am justified in disagreeing with the banking fraternity when they tell me that questions of credit and gold supply are behind our business troubles.

Certain economists lay the depression to hampering tariffs; farmers blame it on the low prices of agricultural products; and workingmen are sure that it is due to low wages and the displacement of men by machines. Others find the cause in excessive armaments, or in the activities of the criminal elements. All may be partially right, but their opinions are warped by self-interest and by their limited contacts with the world.

Returning to Aesop I compare all these men with their various explanations to the four blind brothers who went to "see" the elephant.

One of these encircled a massive leg of the animal and announced: "Plainly the elephant doth resemble a tree." The second touched the squirming trunk and replied: "Nay, he is like unto a serpent." The third felt an ear of the beast and proclaimed him to resemble a palm leaf. At the same time the fourth, who had caught hold of the tail, was sure he was like a rope. They fell into an angry dispute, each amazed at the stupidity and obstinacy of the others. Yet each was partly right.

Let me say that the depression is the elephant—a white one, if you wish. Here I stand at a little distance smiling smugly at the antics of the blind men when suddenly I am assailed by one of those misgivings which are characteristic of the engineer, and wonder if even I see the elephant in its entirety. So I put myself through a rigid self-examination, and here is my reply to myself.

"I am not afflicted with the blindness of those poor wretches because theirs is the blindness of self-interest and of preconceived ideas. I view the elephant from the impartial standpoint of the engineer, walking around it and studying it from different angles. I weigh facts only, and am not dishing up propaganda for the capitalist, the wage-earner, the farmer, the manufacturer, the merchant, the militarist, the pacifist, or any other person or class of persons."

In writing this article I am keeping it as unbiased as an engineering report. My observation and reasoning convince me of the truth of my assertion that the underlying cause of the depression is our over-capacity to produce. I am confident that engineers who read these lines will prefer my conclusions to the haphazard, helter-skelter, hit-and-miss opinions and theories which are advanced by other men.

The object of all production is to furnish a supply of consumers' commodities. In the process we produce capital commodities as well, but these are only stages in the production of those for consumers. Food, clothing, and dwellings are examples of consumers' commodities. There are also sundry consumers' services, such as are rendered by physicians, clergymen, or entertainers, but in this writing I shall include these when I mention consumers' commodities. Examples of capital commodities are tools, machinery, industrial buildings, and agricultural land. I refuse to split hairs with the economists as to the fine distinctions between the two classes of commodities. For the purpose of this article it is sufficient to define consumers' commodities as those at the ends of lines of production.

Here is the important point about consumers' commodities. The consumers will purchase only a certain amount of them. When a larger amount is offered for sale, it means

LICENSES GRANTED

December, 1932

Archila, Fulgencio T.
New York City.
Bergman, Leonard A.
Jamestown, N. Y.
Brown, P. DeWitt
New York City.
*Campbell, John F.
Johnstown, N. Y.
*Carpenter, Chas. W.
Mahopac, N. Y.
Clevette, Chas. P.
Great Neck, N. Y.
Corey, Wm. T.
New York City.
Creedon, Michael V.
New York City.
Davey, Peter
New York City.
*Dryshpel, John
Bronx, N. Y.
Egan, James E.
Port Ivory, S. I.
Farnham, Lawrence V.
New York City.
Gray, Newenham A.
New York City.
Henshaw, Chas. N.
Troy, N. Y.
Henry, Maxwell
New York City.
Howe, Samuel T.
Albany, N. Y.
Iltis, John
Englewood, N. J.
*Keafer, Edward P.
New York City.
LaBrecque, Harry F.
Syracuse, N. Y.
Liberty, Ernest G.
Schenectady, N. Y.
Moore, Raymond P.
Kenmore, N. Y.
Oglesby, Fred B.
Niagara Falls, N. Y.
Pfaff, George C.
Baltimore, Md.
Plausics, Alexander
Forest Hills, N. Y.
Remsen, Thos. R.
Hudson Falls, N. Y.
Rigby, Wm. A.
Highland Falls, N. Y.
*Sayre, Herman A.
Port Henry, N. Y.
Scott, Chester O.
Hastings-on-Hudson.
Shire, Albert C.
New York City.
Strader, Roland H.
Brooklyn, N. Y.
*Symonds, Karl F.
Ilion, N. Y.
Ullrich, Ernest R.
Queens Village, N. Y.
Walker, Lee H.
New York City.
Waterbury, Lawrence S.
Mamaroneck, N. Y.

* Land surveyor only.

---

that we have overproduction. It also means that our facilities of production, which are themselves capital commodities, have been developed beyond our needs, that for a time some of our plants must either be idle or must work at reduced capacity, that there will be some unemployment, that profits will diminish or disappear, and that prices will tend to fall.

The sum total of the consumers' commodities which are used in this country is the measure of our standard of living. If we are to increase sales to consumers, we must raise this standard. Salesmen, advertising agencies, and optimists in general have been telling us for years that our standard of living can be raised indefinitely. They point to its advance of the past fifty years, reminding us that today the average citizen enjoys articles and services which a few decades ago were either unknown or were confined to the prosperous classes. These include not alone inventions like the automobile, the radio, and the washing-machine, but also less striking developments, such as dentistry, bathrooms and vegetables out of season.

Our standard of living has undoubtedly improved, but when I am told that it can be raised indefinitely, I qualify that assertion. I admit that it can be raised, but I make the reservation that the process is a slow one. The standard of living cannot be suddenly jacked up to a height through high-pressure salesmanship.

Let me illustrate this statement. The standard of living in the United States is far from uniform. Large groups of our population do without things which other groups consider indispensable. Such groups may live in houses which are hovels. They eat coarse food, wear rough clothing, and regard as effeminate such items as tooth-brushes, pyjamas, and table linen. Their standard of living can be raised, but do not forget that it will take time. Probably there can be no great improvement until the coming of the next generation.

Certain salesmen and advertising men have a method of their own by which they would have us raise our standard of living. They tell us that every family should have at least two cars, and should buy new models each season; they would have us completely refurnish our houses every two or three years and build new ones every five; they would like us to throw away our clothing at the first sign of wear. But the American people are not going to embark on any such frenzy of waste. It would bring us no happiness; in fact, quite the reverse, for there is much comfort in old houses and old furniture.

When more consumers' commodities are offered us than we care to use, we let some of them remain unbought, even though we have the means to buy them. It is an axiom in trade that the seller seeks the buyer, so it is the normal condition for more commodities to be produced than can be disposed of. If in certain lines the demand should chance to rise above the supply, production would be speeded up as a result. If it should be that even the total capacity of the industry proved insufficient, steps would be taken to enlarge plants and build new ones until there was again an overcapacity.

At all times we are confronted with overproduction, either actual or potential. The supply of consumers' commodities is always ahead of our requirements. Perhaps this may not be true at some distant day, when our population presses, when our natural resources show signs of exhaustion, and when invention has begun to lag, but I am writing of conditions in the United States of today.

Any discussion of consumption brings up the subject of thrift and spending. We do not buy all the consumers' commodities which are urged on us, but most of us, in normal times at least, could buy more if we wished. A portion of our incomes we retain as bank balances, or we invest it in securities, or in life insurance, or in promising real estate, or we use it to finance individual business ventures. In other words, we put that portion of our incomes back into production.

Until very lately the quality of thrift has been accorded undiluted praise, but today it comes in for a share of criticism. The old idea has been that thrift, by providing funds for investment, creates additional employment; the new one is that it actually cuts down employment by limiting consumption. The truth lies somewhere between these two theories. At some point there is a balance between wise saving and wise spending, the position depending on many shifting circumstances.

In the United States since the World War it is evident that we have leaned too far in the direction of thrift. Before the depression, we saved because there were so many inviting avenues of investment. We are still saving, as is shown by the reports of savings banks and life insurance companies, but now it is for the rainy day which may be brought on us through unemployment or a cutting off of dividends.

Much of the confusion regarding the virtues of thrift arises from our not distinguishing between the effect on the individual who does the saving and its effect on the community. To the frugal man his thrift brings worldly prosperity, provided that he does not lose his savings through unfortunate investments. To the community the effect may not be wholly beneficial. Up to a certain point the funds derived from saving are necessary for moving the wheels of industry. Their use beyond that point results in that overexpansion which causes depressions.

(Concluded in next issue.)

AIR REDUCTION SALES COMPANY

LINCOLN BUILDING, 60 E. 42nd STREET, NEW YORK

Airco Oxygen — Acetylene — Airco-D-B-Welding and Cutting Apparatus

To the Professional Engineer of New York and New Jersey

An important year lies ahead. JOIN IN THE WORK by communicating with the Secretary of the Chapter nearest your home. Become a member and aid in the great work that is to be done!

(See Page 5 of this issue)

NEW YORK

ALBANY COUNTY CHAPTER
Edward E. Sheldon
1 Columbia Place
Albany, N. Y.

BRONX COUNTY CHAPTER
Alexander Haring
2489 Sedgwick Ave.,
Bronx, N. Y.

COLUMBIA COUNTY CHAPTER
J. McC. Wardle
503 Warren St.
Hudson, N. Y.

DUTCHESS COUNTY CHAPTER
O. A. D'Luhosch
2 Cannon St.
Poughkeepsie, N. Y.

ERIE COUNTY CHAPTER
Charles R. Waters
546 Delaware Avenue
Buffalo, N. Y.

ESSEX COUNTY CHAPTER
A. J. Keating
Elizabethtown, N. Y.

GENESEE COUNTY CHAPTER
John C. Cowie
Caledonia, N. Y.

JEFFERSON-LEWIS COUNTY CHAPTER
Edwin S. Cullings
530 Light & Power Bldg.
Watertown, N. Y.

KINGS COUNTY CHAPTER
Charles W. Burke
385 Flatbush Ave. Ext.
Brooklyn, N. Y.

MONROE COUNTY CHAPTER
Charles W. Marvin
52 City Hall
Rochester, N. Y.

NASSAU COUNTY CHAPTER
Harold C. Stevens
266 Fulton Ave.
Hempstead, N. Y.

NEW YORK COUNTY CHAPTER
W. J. Krefeld
Columbia University
New York, N. Y.

ONEIDA COUNTY CHAPTER
Harold G. Rice
Capitol Theatre Bldg.
Rome, N. Y.

ONONDAGA COUNTY CHAPTER
Frank B. Floyd
110 Eloise Terrace
Syracuse, N. Y.

ORANGE COUNTY CHAPTER
George Hutchinson
368 Grand Street
Newburgh, N. Y.

QUEENS COUNTY CHAPTER
J. Franklin Perrine
31-35 Buell Place
E. Elmhurst, L. I.

RENSSELAER COUNTY CHAPTER
Frank J. Keis
257 Broadway
Troy, N. Y.

RICHMOND COUNTY CHAPTER
F. H. Zurmuhlen, Jr.
205 E. 42nd Street
New York, N. Y.

ST. LAWRENCE, CLINTON, FRANKLIN COUNTY CHAPTERS
Alfred E. Bartlett
810 Green Street
Ogdensburg, N. Y.

SCHENECTADY COUNTY CHAPTER
Col. Hugh Miller
1018 Nott Street
Schnectady, N. Y.

SUFFOLK COUNTY CHAPTER
Fred J. Biele
184 Nassau Ave.
Huntington, N. Y.

WESTCHESTER COUNTY CHAPTER
Harold W. Watt
428 S. Sixth Ave.
Mt. Vernon, N. Y.

NEW JERSEY

If you reside or practice in the following counties join the Chapter. Communicate with the Secretary.

BERGEN COUNTY CHAPTER
Walter Shirra
12 Beverly Road
Oradell, N. J.

HUDSON COUNTY CHAPTER
Frank J. Oleri,
650 Bergeline Ave.
West New York, N. J.

ESSEX COUNTY CHAPTER
Creighton D. Bickley
North Caldwell, N. J.

MORRIS COUNTY CHAPTER
F. Flagg Vogt
43 Olyphant Drive
Morristown, N. J.

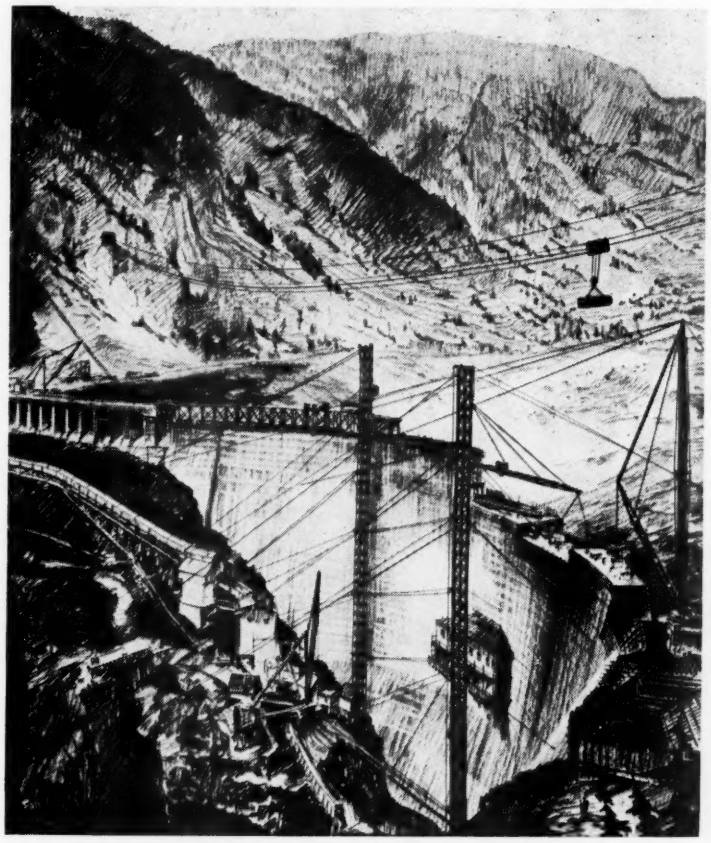
UNION COUNTY CHAPTER
Harry Jurnecka
P. O. Box No. 408
Elizabeth, N. J.

MONMOUTH COUNTY CHAPTER
Leo McKee
16 McLaren Street
Red Bank, N. J.

WEST JERSEY CHAPTER
Paul P. Rice
Accho Bldg.
Phillipsburg, N. J.

SOUTH JERSEY CHAPTER
J. Owen Carter,
47 Cooper Street
Woodbury, N. J.

PASSAIC COUNTY CHAPTER
Ernest F. Weeks
200 E. 5th Street
Paterson, N. J.



50 MILES of ROEBLING ROPE

Diablo Dam is located on the Skagit River, 100 miles northeast of Seattle, near Rockport, Washington. Close to 50 miles of Roebling "Blue Center" Wire Rope were used in building it.

Constructed under contract by Winston Bros. Company, Minneapolis, Minn., for City of Seattle. Engineering work directed by staff of the City Engineer of Seattle, W. D. Barkhuff.

JOHN A. ROEBLING'S SONS COMPANY
TRENTON, N. J.

Brown Instruments
"to measure is to economize"

Flow Meters — Potentiometers
CO_2 Meters — Automatic Controls
Hygrometers — Thermometers
Resistance Termometers
Pressure and Vacuum Gauges

Indicating, Recording, Controlling, Signalling
Write for Catalogues.
THE BROWN INSTRUMENT COMPANY
4451 WAYNE AVENUE, PHILADELPHIA, PA.
Offices in 22 Principal Cities.

The Polytechnic Institute
– OF BROOKLYN –

Day and Evening Courses Leading to Degrees in
Mechanical Engineering
Electrical Engineering
Chemical Engineering
Civil Engineering
Chemistry

Graduate Courses Leading to Masters Degrees are also offered.
For Information and Catalogs, Address:
ERNEST J. STREUBEL
Dean,
99 LIVINGSTON ST., BROOKLYN, N. Y.

Outstanding Buildings Prove the Economy Of

EVANS Elevator Cable Equalizers

Sheave maintenance and cables represent 75 per cent of the total cost of elevator maintenance.

Evans Equalizers automatically distribute the load evenly over all cables, so that every cable and every sheave groove gets the same amount of wear. Impartial tests by building managers, engineers and other authorities prove these points. Under actual usage greater cable mileage is shown and definite savings are made.

These are facts—they deserve the immediate and earnest consideration of every engineer and executive wishing to reduce operating expense.

Evans Elevator Equalizer Co.
70 E. 45th St., New York. Plant: Bedford, Ind.
Branch: Chicago, Illinois.

DIRECTORY OF ENGINEERS

Licensed Professional Engineers

NEW YORK CITY

JULIUS HARWOOD

P. E. & C. E.

233 Broadway

Holst, J. L.

Consulting Engineer

Investigations, Reports, Design, Specifications, and Supervision of Construction of Buildings, Bridges, Tunnels, and Marine Structures.

New York City,
420 Lexington Avenue

ROBINSON & STEINMAN

Consulting Engineers

H. D. ROBINSON
D. B. STEINMAN

Bridges:

Design, Construction, Strengthening, Investigations, Reports, Advisory Service

117 Liberty St., New York City

STILLMAN & VAN SICLEN Inc.

Chemical and Testing Engineers

"Tests and Analyses of Paving and Building Materials, Asphalt, Cement, Concrete, Road Oils, etc. Investigations, Reports and Inspection Service. Core Borings."

227 Front St. New York City

I. Hochstadter, L. P. E. No. 2017
F. Moller, " No. 9672
S. Newmark, " No. 9769
K. M. Hersten, " No. 9723

NEW YORK CITY

Dennis C. Quinn, C. E.
3352 Bronx Boulevard
Phone: Olinville 2-5733

D. J. LEWIS, JR.

Centrifugal Expert

in

Separating Chemical Products, Crystals, etc.
1176 Woolworth Building,
New York, N. Y.

WEISS & DOWNS, Inc.

Chemical Engineers

50 EAST 41st STREET
NEW YORK
(Chemists' Building)

HARRY L. BARNITZ

Consulting Engineer

Industrial Municipal Rural Gases, liquid and Gaseous Fuels, Sanitation, Water Supply and Diversified Engineering.

Investigations, Reports, Specifications, Designs, Supervision of construction, Expert testimony and Counselor to Legal Profession.

215 Bennett Avenue
New York City

A. C. WHITEHEAD,
P. E. & M. E.

Mechanical Engineer

Patents developed. Automatic, Special and Industrial Machinery. Investigations, Reports, Advisory Service.

119-19 89th Avenue,
Richmond Hill, N. Y. City

WHITE PLAINS

THE HALLER TESTING LABORATORIES, Inc.

121 Westmoreland Ave.
White Plains, N. Y.

Engineers — Chemists
Inspectors

MR. E. A. ROBINSON
9242 P. E. L. S.

NEW YORK CITY

H. J. DEUTSCHBEIN COMPANY, Inc.

Empire State Building
New York, N. Y.

Foundations

FRED'K H. ZURMUHLEN, C. E.

Consulting Engineer

Building Design and Construction

205 E. 42d St., New York City

CLYDE R. PLACE

CONSULTING ENGINEER

Graybar Building

Grand Central Terminal

New York City

PELHAM

Gordon E. Ferguson

Licensed Professional Engineer

INVESTIGATIONS
VALUATIONS

410 River Ave., Pleham, N. Y.
Pelham 0665

STATEN ISLAND

North, Allison & Ettlinger

Civil Engineers and Surveyors
36 Richmond Terrace,
Staten Island, N. Y.
Phone: St. George 7-0436

H. W. ORDEMAN

Consulting Engineer

Water Front and Industrial Investigations, Legal Testimony
82 Harbor View Place
Rosebank, S. I., N. Y.

NEW ROCHELLE

R. J. VAN WAGNER,

INCOPORATED

Engineers and Contractors

150 Trenor Drive
New Rochelle

New Rochelle 4572

POUGHKEEPSIE

FRANK S. HOPKINS

Civil Engineer & Surveyor

20 Cannon Street,
Poughkeepsie, N. Y.
Phone 4350

BROOKLYN

EDMUND J. McCORMICK
Licensed Professional Engineer

Evaluation of Real Estate, Inspection, Advisory Service, Expert Testimony
153 Pierrepont Street
Brooklyn, New York
TRiangle 5-2967

New Jersey

NEWARK

HOWARD INSPECTING AND TESTING LABORATORIES

For materials of construction of pavements, sewers, bridges, concretes; also coal, fuel-oil, etc. Concrete cores drilled, 43 years experience. Write for rates.

Expert investigations including pavement patents.

234 Mt. Prospect Avenue
Newark, N. J.
Branch Brook 2-4873

HOBOKEN

Capt. Ramon B. Harrison
Civil (Construction) Engineer
and
Land Surveyor

514 Fourth Street
Hoboken, N. J.
Hoboken—3-9460

JERSEY CITY

COL. HUGH A. KELLY
CIVIL ENGINEER AND ARCHITECT

921 Bergen Avenue
Jersey City, N. J.
Journal Square 2-2100

Arnold Weisselberg, M. E.

Consulting Engineer
Power Plant and Industrial Plant Engineering
Investigation, Research, Test, Design, Supervison
32 Kensington Avenue
Jersey City, N. J.
BErgen 3-7446

R. ROYAL ROANE

CONSULTING ENGINEER

Hydraulic Dredges, Contractors' Equipment, Sand, Gavel and Dredge Pumps.

Design, Supervision, Survey, Reports and Appraisals.

11 Gifford Avenue
Jersey City, N. J.
Phone, DElaware 3-2443

License No. 2463, Mechanical and Hydraulic.
New Jersey State Association.

PLEASE NOTE:

Attention--

Engineers in Private Practice

"The American Engineer" is setting a precedent in Professional Directory.

In keeping with the spirit and principles of The New York State Society and The New Jersey Association of Professional Engineers we are building a Professional Directory for Licensed Professional Engineers and Licensed Land Surveyors.

This is the only Directory in which a License is compulsory.

Every member in private practice should cooperate in making this Directory both comprehensive, representative and useful. Will you?

Members of The New Jersey State Association are urged to send in their listing. The charge is nominal.

SEVERAL years ago two hangars, each 140 feet long and 60 feet wide, were erected at Watson Airport, near Cincinnati, Ohio, for use by the United States Army Air Force. Later they were moved to their permanent location at Lunken Airport, Cincinnati, one of the finest flying fields in the country.

At this time it was decided that they should be equipped with permanent roofs for protection against lightning and the fierce storms which sweep the Ohio valley. The work was done by the Edward Meyer Roofing Company, Cincinnati, and the material selected was Toncan Iron.

Toncan Iron, an alloy of refined iron, copper and molybdenum, ranks first among the ferrous metals after stainless steel in its resistance to rust. It resists the devastating action of time and the elements, and brings a degree of permanence in building construction far greater than its slightly higher cost would seem to indicate.

Engineers and contractors interested in obtaining longer life from ferrous metals should read "The Path to Permanence." A copy will be sent upon request.

REPUBLIC STEEL CORPORATION
GENERAL OFFICES YOUNGSTOWN, OHIO

TONCAN IRON
COPPER MOLYBDENUM

AMERICAN WEDGBELT DRIVES

The ideal long-lived V-Belt Drive for heating and ventilating equipment and general industrial use.

THE AMERICAN PULLEY CO.
4200 WISSAHICKON AVE. PHILADELPHIA

T. J. KENNEDY
President

Telephone
COrtland 7-6385

KENNEDY–RIEGGER DRILLING CO., Inc.
CORE DRILLING CONTRACTORS
DIAMOND DRILL AND WASH BORINGS
30 CHURCH STREET
NEW YORK

F. W. RIEGGER, C. E.
Treasurer
Associate Member A. S. C. E.
N. Y. State License No. 668

THE CORE JOINT CONCRETE PIPE COMPANY

Plain and Reinforced Concrete Pipe
For All Specifications

1400 COMMERCE AVE. BRONX, N. Y. CITY

WEstchester 7-8200

If It's Reading Pipe YOU KNOW

—that it is made in the same way from the same high quality materials that went into the making of the puddled iron pipe that gave wrought iron its reputation.

—that it is even better than before because closer and more accurate controls plus far more rigid inspection maintain quality at the highest point in Reading history.

When you need GOOD pipe—Specify Reading

READING IRON COMPANY
PHILADELPHIA
PIPE BARS BOILER TUBES

Science and Invention Have Never Found a Satisfactory Substitute for Genuine Puddled Iron.

PHILIP J. HEALEY
INCORPORATED
BORINGS
FOR
BRIDGES – BUILDINGS – DOCKS
DAMS–SEWERS–SUBWAYS, Etc.
25 Church St. New York
Phone BArclay 7-2728

OUR AIM
"TO SERVE AND SATISFY"

CROKER FIRE PREVENTION CORP.

Fire Hose
Hose Racks
Extinguishers
Fire Appliances
Pressure Reducers

Any Fire Department or Special Fittings Made to Order

22 WEST 30th STREET
New York City

Phone BOgardus 4 - 0023

NEAR TO THE HEADQUARTERS OF THE SOCIETY!

•The Hotel Montclair is located in the new smart center of New York — near to the headquarters of the Society of Professional Engineers—convenient to the bus and railroad terminals, the theatrical districts and the business sections.

Each of the 800 rooms in this distinguished hotel offers outside exposure, bath, shower and radio, yet the rates are surprisingly moderate.

SINGLE ROOMS from $2.50 per day
DOUBLE ROOMS from $3.50 per day

Unexcelled luncheon 65c Dinner de luxe, with dancing $1

HOTEL MONTCLAIR
Lexington Ave., 49th to 50th Sts., N. Y. C.
J. L. Pultz, Resident Manager

Booth & Flinn Co.
Inc.
CONTRACTORS

MAIN OFFICE
1942 FORBES STREET
Pittsburgh, Pa.

M. SHAPIRO & SON

Engineers
and
Contractors

1560 Broadway, New York, N. Y

SAMUEL VALENSTEIN
Chief Engineer

SPECIFY

GENERAL ELECTRIC WIRING MATERIALS

In addition to offering a reliable single source for wiring materials to meet every type of constructional requirement, General Electric invites Professional Engineers to take advantage of the services of its engineering department.

- G-E White Electrical Conduit
- G-E Code Wire and Cable
- G-E Fiberduct
- G-E Wiring Devices

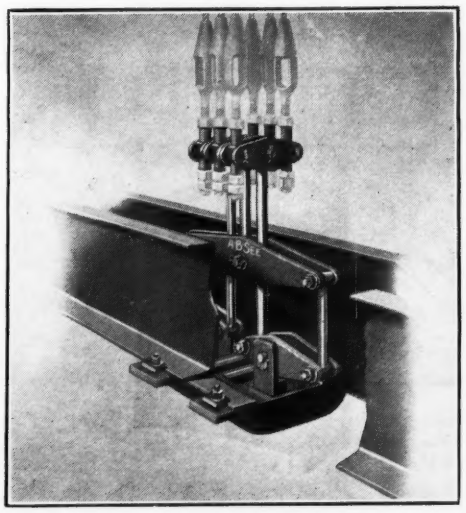
Technical information on all G-E Wiring Material products can be obtained by writing Section G-2912, Merchandise Department, General Electric Company, Bridgeport, Connecticut.

GENERAL ELECTRIC

WIRING MATERIALS

MERCHANDISE DEPT., GENERAL ELECTRIC CO., BRIDGEPORT, CONN.

A. B. SEE CABLE EQUALIZER



EQUALIZED CABLES MEAN MORE MILES

Insist that all new elevators or your present traction type elevators about to be recabled, be equipped with A. B. SEE EQUALIZERS.

Installations now burdened with the excessive cost of too frequent recabling will be materially benefitted by equipping all cars with Equalizers.

We shall gladly survey your elevator installation and explain the many advantages of Equalizers.

A. B. SEE ELEVATOR COMPANY, INC.

Main Office - New York

FOUNDED 1883

NEW YORK (Manhattan, Brooklyn, Bronx) DETROIT
JERSEY CITY NEWARK BOSTON PHILADELPHIA
HARTFORD BALTIMORE WASHINGTON

THE HART, COOLEY, HIGHTON CO.

Announces the New Complete Line of

H-C-H

CONVECTION HEATERS

The Hart & Cooley Mfg. Co., and its Wm. Highton & Sons Division have been active participants in the heating trade for thirty years. The Hart & Hutchinson Co., has behind it many years' experience in metal cabinet work. The Hart, Cooley, Highton Co., combines these factors in producing a line of Convection Heaters.

Over six years was spent in experimental work and laboratory tests before formally announcing this complete line of Convection Heaters. Efficiency and durability were the prime considerations in designing the heating element and in every point of construction these features figure prominently. The outstanding points are:— all-copper heating element, multi-tube construction with a minimum of four tubes per unit, and all welded connections.

The enclosures have also been given careful study and are designed to meet every condition. The complete line includes two styles of both plastered in and plate type enclosures, as well as a semi-recessed model, and two cabinet designs, free standing and wall hung. A wide choice in grille designs assures harmony with any style of interior decoration.

For complete information send for catalogue No. 33-C.

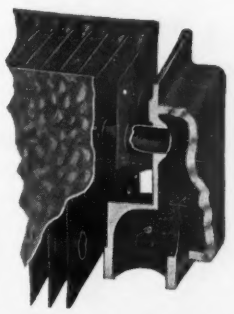
THE HART, COOLEY, HIGHTON CO.

New Britain H-C-H Connecticut

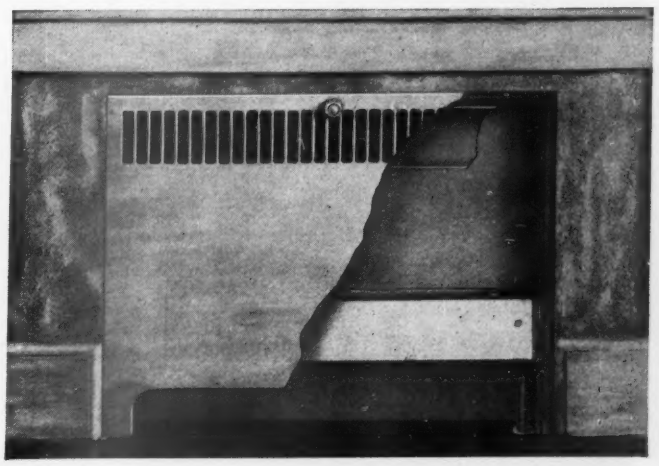
New York Office—101 Park Avenue

TELEPHONE: CAledonia 5-3842

Cutaway view of H-C-H Type R Convector showing stack, or lining, heating element, and front with damper. The feature of this type is a plaster lock frame into which the front fits, making the face of the front flush with the plaster line.



Cutaway view of heating element illustrating multi-tube construction and heavy cast bronze header into which the tubes are welded.



DUNHAM DIFFERENTIAL HEATING

C. A. Dunham Co., Chicago

NEW YORK SALES OFFICE

101 Park Avenue

W. W. TIMMIS, Mgr. Phone AShland 4-8515

Always marked with a "Diamond"

Extra years of service prove Jenkins the cheapest valve in the long run.

•

JENKINS VALVES

BRONZE IRON STEEL

Since 1864

JENKINS BROS.

New York City; Boston; Chicago; Philadelphia; Bridgeport, Conn.

Obtainable through your supply house

AMERICAN AIR FILTERS

Standard wherever there's AIR to be Cleaned

American Air Filters are made by the world's largest manufacturers of air cleaning equipment in a wide variety of types adaptable to every commercial and industrial use.

Our research staff is at your disposal—without cost or obligation—to assist you in working out your engineering problems that apply to the cleaning of air.

American Air Filter Co., *Inc.*

235 Central Avenue, Louisville, Kentucky

In Canada, MIDWEST CANADA LTD., Montreal, P. Q.

Just as good?

"Management was assured doors were similar to Peelle and just as good. Operating experience proved otherwise. Replaced after three years of poor service by Peelle Doors."

Excerpt from unbiased survey.
Name and details on request.

Few are the building costs that can't be pruned by substituting a cheaper product. The exclusive features, the proven performance ability of Peelle Doors cannot be duplicated. Their slightly higher initial cost is a guarantee of repair-free, operating economy. Peelle Doors save money in performance, not just on paper. Over 15,000 installations, serving under varied operating conditions, have proved their safety, efficiency and economy.

THE PEELLE COMPANY

Brooklyn, New York

Boston, Chicago, Cleveland, Philadelphia, Atlanta, San Francisco, Dallas, and 30 other cities

The Doorway of America's Freight Elevator Traffic

See catalogue in SWEET'S

STEEL FLOORING

Write to Kerlow

KERLOW STEEL FLOORING COMPANY
Culver Ave., Jersey City, N.J.

METROPOLITAN SEWER PIPE COMPANY, Inc.

Sewer Pipe, Drain Pipe and Special Fittings for Sewer and Disposal Construction

YARDS

200th STREET AND WEBSTER AVENUE
237th STREET AND BAILEY AVENUE
BRONX, N. Y.

TRANSITS — LEVELS

PLUMB BOBS

RODS — — TAPES

DRAWING INSTRUMENTS

TABLES — — FILES

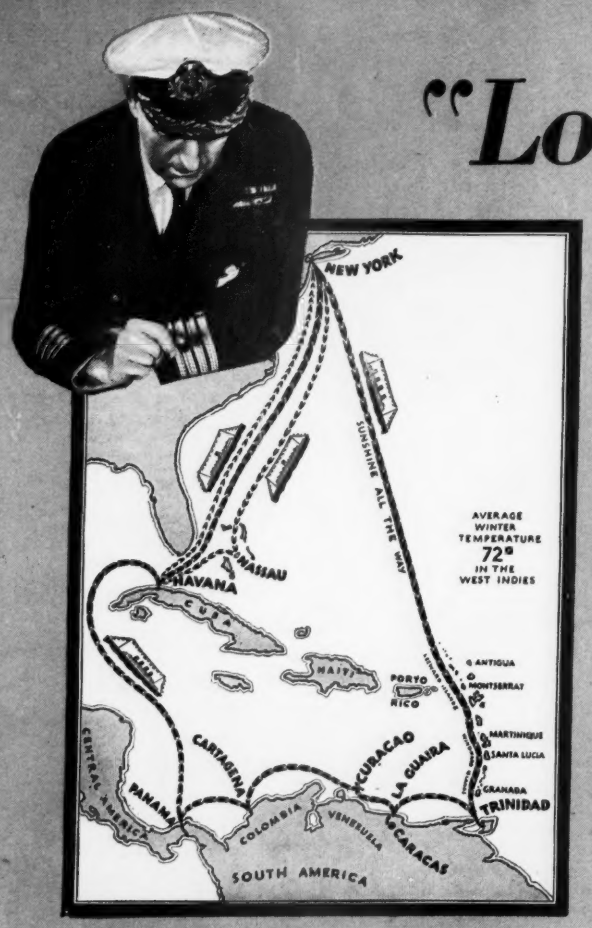
BLUE PRINTS

SERVING THE ENGINEER SINCE 1885

K
TRADE MARK

KOLESCH & CO.

138 FULTON STREET NEW YORK



"Look at this itinerary!"

Only the MAURETANIA

"THE ARISTOCRAT OF THE ATLANTIC"

Offers in a 12-Day Cruise:

2	6	7	$155 UP
CONTINENTS	FOREIGN COUNTRIES	DAYS ASHORE	FIRST CLASS

Visiting Port of Spain, Trinidad; La Guaira, Venezuela, South America; Willemstad, Curacao; Cartagena, Colombia; Colon, Panama and Havana, Cuba . . . passing by daylight the Leeward and Windward Islands. Amazing itinerary . . . in a World-Famous Liner now transformed into the Ideal Cruise Ship by a new sun deck of 3000 square feet! Only 8 days away from business.

FIVE SAILINGS! From N. Y. Jan. 21, Feb. 4, Feb. 18, Mar. 4, Mar. 18.

FRANCONIA to Nassau and Havana

9-day cruises in a great World-Circling Liner! A day in Nassau, 2 days and 2 nights in Havana. *$102.50 up, First Class* (Jan. 28th cruise lasts 10 days, extra day in Havana . . . rate $112.50 up).

From New York . . . Jan. 28, Feb. 10, Feb. 24, Mar. 10, Mar. 24 (from Boston day previous).

NO PASSPORTS REQUIRED

Full information from Your Local Agent or Cunard Line, 25 Broadway, N. Y.

CUNARD Caribbean Cruises